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ABSTRACT

This study of 119 preschool programs in 5 states was designed to describe the classroom experiences of economically or educationally disadvantaged 4-year-old children and to examine linkages between characteristics of early childhood programs and the activities of the children and teachers in the classroom. Chapters 1 and 2 describe the context for the study and the study design. Chapter 3 reports the characteristics of the programs, classrooms, and staff observed, while chapter 4 chronicles the classroom day with regard to activities, groupings, and supervision. Chapters 5 and 6 examine interactions in the classroom and the measurement and prediction of the quality of the classroom experience, while chapter 7 presents the study's conclusions. Among the findings are that: (1) preschoolers spent over half their time in activities believed to foster cognitive growth; (2) in a substantial number of classrooms, activities that would be expected to be included in the daily curriculum, such as story-time or science and natural world activities, did not occur; and (3) lower child to staff ratios, higher teacher education levels, and higher levels of parent involvement were associated with all global measures of classroom quality. Implications of these results are also discussed. Three appendixes provide supporting tabular data, a profile of the "classroom snapshot" observational tool, and descriptions of four global quality measures. Includes 73 references. (MDM)

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OBSERVATIONAL STUDY OF EARLY CHILDHOOD PROGRAMS

VOLUME I

LIFE IN PRESCHOOL

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OBSERVATIONAL STUDY OF EARLY CHILDHOOD PROGRAMS

FINAL REPORT VOLUME I:

LIFE IN PRESCHOOL

Prepared by

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1993

Prepared for

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EXECUTIVE SUMMARY

The Observational Study of Early Childhood Programs was commissioned in 1989 by the U.S. Department of Education to expand our knowledge and understanding of the early childhood experience of disadvantaged preschoolers. The study was designed to describe the classroom experiences of economically or educationally disadvantaged four-year olds and to examine linkages between characteristics of early childhood programs and what happens in the classroom. In addition, the study sought to investigate issues surrounding the quality of the early childhood experience--how to define quality, how to measure it, and how it is influenced by characteristics of early childhood programs, classrooms, and staff.

Study Design

The sample consisted of 119 randomly-selected programs from five sites: San Francisco and Richmond counties in California; Bexar County, Texas; Dade and Broward counties, Florida; Union, Hudson and Essex counties, New Jersey; Oakland, Wayne, and Washtenaw counties in Michigan. The five sites were not intended to be nationally representative; rather, they were chosen purposively to reflect geographic and regulatory diversity. In each site, programs were stratified by type: Head Start, school-sponsored programs, and child care centers. Programs were sampled to represent proportionately the distribution of the three program types in each site. To be eligible for the study, programs had to:

- serve a predominantly low-income population;
- provide care for at least 12 4-year-old children;
- operate at least four half-days each week; and
- serve no more than 10% of children with special needs.

From each program recruited to the study, a single classroom was randomly selected.

Measures. The observational study emphasized detailed observation of the early childhood environment as a way to provide unique insights into that experience. Our review of existing observation instruments revealed two major gaps. None of the instruments that we

reviewed allowed us to capture and **describe** the nature of children's experiences in the early childhood environment, in terms of the pattern of activities and grouping throughout the day; the amount and quality of supervision; the nature of interactions between children and teachers and among children; and children's solitary behavior with materials and equipment. In addition, none of the instruments reviewed captured, in a descriptive way, teachers' behavior with children.

For these reasons, we developed **two new measures** for the study; **one** that would focus on staff in the classroom -- their use of time, interactions with children and teaching techniques; and a **second** that would allow us to code in detail the behavior of children in the classroom. Together with two widely-used global and evaluative measures of classroom quality, (the Early Childhood Environments Rating Scale and the Assessment Profile for Early Childhood Classrooms) a measure of teachers' emotional tone, an assessment of developmentally-appropriate practice, and a measure of classroom structure, groupings and activities, these measures allowed us to capture and record a vast quantity of information about many different aspects of early childhood classrooms.*

Seven observation-based measures were used in this study. Trained observers spent one week in each of the 119 classrooms observing and coding classroom activities and groupings and the behavior of teaching staff and children. In addition, they interviewed program directors and classroom staff.

Findings

Children's Activities in the Classroom

- Children in early childhood classrooms spent, on average over half their time in activities that are believed to foster cognitive growth. Almost one-third of their time, or 20 minutes of every hour, was spent in activities with more structured goals, including math and language arts, science and natural world activities, block construction, table games and puzzles,

*It is important to note that the study did not set out to measure every aspect of early childhood programs. There was no detailed investigation of program elements such as health and social services. Resource constraints limited our examination of the nature and extent of parent involvement.

looking at books and pictures. Children spent one-quarter of their time in art and music activities or in exploratory play (sand or water play, dramatic and fantasy play).

- Classroom routines such as arrival and departure, setting up and cleaning up, toileting, waiting and moving from one activity to another, absorbed another 20 percent of time.

- Most classrooms contained the raw materials for a wide variety of activities. However, in a substantial number of classrooms, activities that we would expect to be included in the daily curriculum of an early childhood classroom did not occur. In more than half of the classrooms, no children were engaged in science or natural world activities, or in sand or water play. In about one-third of the classrooms, no children were observed building with blocks or looking at books. In a quarter of the classrooms, there were no math or language activities; in more than a quarter, there was no story-time, either for the class as a whole or for smaller groups of children.

Children's Groupings

- Current thinking about developmentally appropriate practice in the early childhood classroom recommends that children spend most of their time working individually or in small groups. In these centers, children spent close to half of their time in small groupings, either playing alone or in a group of six or fewer children. About 40 percent of the time, children were in one large group. There was substantial variation across classrooms in the pattern of child groupings. In a few classrooms, the majority of time was spent in small groups while, in 15 percent of the classrooms, children spent less than 25 percent of their time in small groups.

Teacher Behavior

- Classroom staff were actively involved with children nearly 70 percent of the time (excluding naps and mealtimes). They spent just one-quarter of the time in teaching activities and almost one-fifth in managing (i.e., organizing and controlling) children's behavior in the classroom. Lead teachers spent more time in teaching and managing children's behavior; classroom aides or assistant teachers spent more time out of the room or observing activities.

- It was relatively rare for staff to spend time with individual children. About 10 percent of staff time was spent with individual children; most

commonly, staff interacted with the class as a whole or with a large group of children. Head teachers spent twice as much time as assistants or aides working with the class as a whole.

- Across all classrooms, more than 30 percent of children had no individual interaction with an adult during the observation period. Classrooms varied markedly on this measure: in eight percent of classrooms, only a small fraction of children did not interact with an adult; in 12 percent of the classrooms, more than half of the children received no individual attention.

Children's Behavior

- Children were engaged in activities with goals about 40 percent of the time. Most of these involved exploration of materials rather than structured activities such as puzzles or worksheets. In just over eight percent of classrooms, children were engaged in activities with goals less than 10 percent of the time.

- About a quarter of children's interactions involved the use of higher-level social strategies such as cooperating with others or organizing and planning joint activities. These higher-level strategies were more likely to occur in the context of dramatic or fantasy play, as well as during active, informal play. They were least likely to occur during group time or in transition or routine activities. In almost 30 percent of the classrooms, fewer than 10 percent of children's interactions involved the use of higher-order social strategies.

Differences Among Program Types

- In a number of ways, classrooms and staff look similar across all three program types--in the instructional philosophy of the classrooms, in several aspects of the classroom composition and in teachers' and aides' prior teaching experience. There are a few interesting differences: Head Start classrooms had significantly lower child/staff ratios than other classrooms and were less likely to have children supervised by a single adult for an substantial period of time; teachers in school-sponsored programs had higher educational credentials than teachers in other programs. In Head Start classrooms, a partial counterbalance was that almost all aides had early childhood training and more than half had received a degree or certification in a relevant field of study. Thus a typical classroom in a school-sponsored program was likely to have a more highly-educated teacher, assisted by a relatively untrained aide. The Head Start classrooms were likely to have a trained teacher (albeit with

fewer formal educational credentials) assisted by a trained aide. Child care centers tended to have teachers and aides with less formal education or specialized training.

- Classrooms in all three program types maintained "acceptable" levels of quality, on average, as defined by the two instruments that provide criteria against which to assess classroom quality. The instruments incorporate judgment about many aspects of the classroom experience, including space, and equipment, classroom safety, schedule and curriculum and teacher behavior Head Start centers were among the highest rated and the level of quality was more consistent than in other program types.

Relationships Between Program Characteristics and Indicators of Classroom Quality

- **Lower child/staff ratios** (i.e., fewer children per staff member) were positively associated with all of the global measures of classroom quality and with the amount of adult interaction with individual children.

- **Teacher education** was strongly associated with teacher affect and behavior; teachers with a college degree tended to be more responsive to children, to use positive techniques more often, and to spend more time interacting with children and more time teaching children.

  Teacher education was also related to amount of classroom time children spent in activities with goals and the frequency of developmentally-appropriate practices. Analyses of the link between quality and teacher education within the three program types suggested an additional finding. The lack of influence that teacher education had in Head Start programs suggests that it may be possible to achieve some of the benefits of higher education through the kind of preservice and inservice training provided by Head Start, including CDA certification.

- **Level of parent involvement** was associated with a higher overall quality rating as well as with more teacher involvement with children, more teaching, and more children receiving individual attention from the teacher.

- Although the global measures of quality were more strongly associated with program characteristics, the micro-observation measures of classroom process were better predictors of the child behaviors defined as proxy child outcomes (specifically children's task engagement and use of higher level social strategies with other children).

Conclusions

The study's findings have implications for practioners in the field of early childhood education and for future research in preschool settings.

Implications for Practice

- It is encouraging that programs included a wide variety of activities in the daily curriculum and, that children spent, on average, substantial portions of time in goal-directed and exploration activities. However, some activities that we would expect to be included in the daily curriculum, such as math or language, science and the natural world, and story reading or looking at books, did not occur on a daily basis in a significant number of classrooms. In good early childhood classrooms, activities that enhance the child's language and increase his or her motivation to learn should occur daily.

- Children spent close to half of their time in small groups or working alone, but there was substantial variation across classrooms in the pattern of child groupings. In 20 percent of the classrooms, children spent most of their time in a single large group, leaving little time for small-group or individual activities. This is of particular concern because, while interesting things can happen in the large group, it does not lend itself to the "rich play" that includes activities such as block building, puzzles and table games, science, art or music, and exploratory activities such as dramatic or fantasy play. In addition to providing opportunities for "rich play," the small group offers children opportunities to choose among activities and work together without direction by an adult. Large groups, by their very nature, need the supervision and direction of an adult to move the activity along.

- While staff in these classrooms spent most of their time actively involved with children, the largest proportion of this time was spent with the group as a whole. In spite of the emphasis that early childhood educators place on attention to the individual child's needs, both teachers and aides spent little time in interaction with individual children. An additional concern is the 12 percent of all classrooms in which more than half of the children received no individual attention over the course of the two observation periods.

- When we look closely at the interaction between teachers and aides and children, clear differences in roles and strategies emerge. Teachers spent

more time teaching, aides spent more time organizing the classroom and managing children's behavior. While both teachers and aides used many positive verbal techniques in their interactions with children, teachers were much more likely to use explanations and questions or to give praise. Aides, as they organized children's behavior tended to use direct commands more. The result is often that only one of the two adults in the classroom is "teaching."

- We identified two aspects of children's behavior some researchers have found to be related to later school success: engagement in activities with goals; and the use of higher order social strategies. The study provided us with some clues about the environments and activities that promoted these two types of behavior. In classrooms with more highly educated and trained teachers, children spent more time engaged in activities with goals. This suggests that more highly trained teachers are able to structure the environment so that children easily find activities that interest and engage them.

- A different picture emerges when we look at children's use of higher-order social strategies (i.e., the extent to which they initiate and organize activities, or work together on a task or share resources and ideas). These behaviors emerge most strongly in the context of exploratory play, with peers. To support and encourage these behaviors, sufficient time needs to be set aside for dramatic and fantasy play, as well as other exploratory activities, in which children in small groups, without the constraint of an adult presence, can mutually organize and cooperate. This means that the teacher must provide the opportunity for the activity and then let the children take charge of it.

Implications for Research

- The measures of quality used in the study have different strengths and weaknesses. The global ratings are more reliable and have been widely used in earlier research studies, allowing comparisons with other samples. They include many aspects of the classroom environment that are specified in standards and in descriptions of good educational practice. However, they tend to focus heavily on physical and organizational aspects of the classroom. It is not possible to capture dynamic classroom processes in any detail with any of them, nor is it easy to determine where inadequacy lies - whether it is in the type and amount of equipment, its use or the teacher's behavior, since often all three are incorporated into a single item.

- The quality measures derived from the micro-observations, on the other hand, represent an effort to move measurement of quality in a new direction. The micro-observations allowed us to characterize the classroom experience in some detail, including how adults and children spent their time, their activities and groupings, how the teacher's attention was distributed among children, the kinds of teaching strategies used, and the ways in which children behave with adults, with peers, and on their own. These measures, while relatively untested, are more discrete and more directly tied to classroom process. However, while they provide the basis for examining classroom process in detail, additional work needs to be done to connect the micro-observation measures more closely to theories of what constitutes a "high-quality" environment, that is, to establish bench marks for attributive, evaluative labels such as "high" or "moderate" quality.

As we noted earlier these early childhood settings resembled one another in many ways and generally provided an adequate early childhood experience. There were relatively small variations in quality among the settings and only a small number of programs were rated as being of low quality. The range of variation in regulatable program characteristics such as child-staff ratio was also relatively narrow. On the other hand, none of the programs we studied were rated as excellent. These two findings, taken together, suggest the possibility that while regulating program characteristics can ensure adequate care, it does not necessarily produce the high quality experience that we would want for all children.

We were unable to test the hypothesis that radically higher standards for ratio, group size or teacher qualifications would result in dramatically higher quality classrooms. A more feasible approach to raising the quality of the early childhood environment would be to alert early childhood staff, through training, to the more subtle aspects of the child's experience that contribute to quality. These would include: true individualization of the educational program; emphasis on child-directed learning; easing the rigidity of classroom staff roles; and encouraging children to develop and use higher-level social strategies. Future research should examine whether training that focuses on the kinds of teacher behaviors highlighted in this study can succeed in producing high-quality classroom environments.

There is an increasingly shared belief in the importance of the early childhood experience in the child's later functioning and success in school. In the last twenty years we have moved

toward agreement on what kinds of early childhood experiences will best promote good development. These shared beliefs have been influential in placing a floor on the quality of the early childhood setting for poor children. The task that remains is to move beyond the present "acceptable" level of quality to the high-quality environment that we believe has the power to change children's lives.

PREFACE

The Observational Study of Early Childhood Programs was commissioned in 1989 by the U.S. Department of Education to expand our knowledge and understanding of the early childhood experience of disadvantaged preschoolers. It emphasized detailed observation of the early childhood environment as a way to provide unique insights into that experience. The study's specific policy objectives were to:

- fill the gap in currently-available information about center-based programs for low-income children;
- identify indicators of program quality;
- investigate the relationships between program characteristics and program quality;
- measure the impact of high-quality programs on participating children; and
- disseminate to early childhood program staff information needed to improve program quality.

The Observational Study has two parts: an observational and descriptive study of approximately 120 early childhood programs serving disadvantaged children in five geographically-distributed sites; and a substudy of children in prekindergarten classrooms funded all or in part with Chapter 1 of the Hawkins-Stafford Elementary and Secondary School Improvement Amendments of 1988. The substudy was designed to examine relationships between Chapter 1-funded prekindergarten classrooms and children's cognitive and social-emotional development and to describe how the programmatic experiences of children changed from prekindergarten to kindergarten. This volume focuses on the first part of the overall study, the observational and descriptive study of early childhood programs. A second volume reports findings from the Chapter I substudy.

Chapter One of the report provides a policy context for the study and briefly describes the early childhood programs that serve four-year-olds from poor families.

Chapter Two describes the design of the study. It begins with a discussion of what constitutes quality in the early childhood environment and what previous research has to say about the factors that influence the quality of the child's experience. The selection of measures, sites and programs is discussed.

Chapter Three provides a profile of the programs, classrooms and staff that participated in the study, focusing in particular on those characteristics identified in Chapter One as potentially linked to the quality of the classroom experience.

In Chapter Four we turn to a description of the classroom day--the kinds and mix of activities that children engage in, the ways in which they are grouped, and the presence or absence of adults in the groups.

Chapter Five continues the description of the classroom experience, focusing more specifically on the interactions that occur between adults and children and among children.

Chapter Six describes the findings from our investigation of relationships among different measures of quality and between measures of quality and characteristics of programs, classrooms and staff.

Chapter Seven sets forth the study's conclusions about the implications of the findings as they relate to current early childhood practice and to future research.

Three appendices provide additional information. Appendix A contains tables for Chapters Three, Four, Five and Six that provide additional statistical information for the interested reader. Appendix B contains a description of the procedures used in administering and analyzing the Classroom Snapshot. Appendix C contains descriptions, scoring procedures and reliability estimates for four other classroom measures: the Early Childhood Environment Rating Scale (ECERS); the Assessment Profile for Early Childhood Classrooms; the Description of Preschool Practices; and the Arnett Global Rating Scale.

CHAPTER ONE

A CONTEXT FOR THE STUDY

The first of the six national education goals enunciated by the nation's Governors and President Bush in September 1991 states:

> **By the year 2000, all children in America will start school ready to learn.**
>
> - **All disadvantaged and disabled children will have access to high quality and developmentally appropriate preschool programs that help prepare children for school.**
> - **Every parent in America will be a child's first teacher and devote time each day to helping his or her preschool child learn; parents will have access to the training and support they need.**
> - **Children will receive the nutrition and health care needed to arrive at school with healthy minds and bodies, and the number of low birthweight babies will be significantly reduced through enhanced prenatal health systems.**

The current state of the nation's children makes this an ambitious goal indeed. Five million children under age six, almost one child in four, live in poverty; another 2.7 million live in families with incomes between 100 percent and 150 percent of the poverty threshold. Poor young children are more likely to be members of a minority group, to live in households headed by a single parent, in areas of concentrated poverty where violence is an increasingly familiar ingredient of everyday life (National Center for Children in Poverty, 1990).

For infants and young children, the immediate consequences of poverty are severe. High levels of infant mortality and morbidity, prematurity and impaired health status are all associated with infants born into poverty. Young children living in poverty are less likely to see a pediatrician, to receive dental care and immunizations, and to live in a safe home environment that nurtures their development (Garbarino, 1992; Rosenbaum, 1992; Gelles, 1992). Poor children enter school bringing with them an array of physical, emotional and social problems that inhibit educational success. As they enter adolescence, the longer-term consequences of

poverty begin to be manifested in lower school achievement and unfinished education, early sexual activity leading to teen pregnancy, substance abuse, delinquency, and a higher incidence of death as a result of accidents or homicide (Schorr, 1989).

There is increasing agreement among policymakers and members of the public that readiness for school, as well as the likelihood of school success, can be improved through early intervention in the lives of young children and their families. While the evidence supporting this belief is drawn from studies of the impact of high-quality "model" early childhood programs (e.g. Lazar and Darlington, 1982; Berrueta-Clement et al.), it is frequently adduced to support any organized preschool experience. Early childhood programs, primarily for children considered to be at risk for school failure, are proliferating at the state and local levels and receive increasing support at the federal level. In 1979, six states and the District of Columbia had enacted early childhood legislation; by 1987, 26 states, as well as Washington, D.C. had such legislation (Haskins, 1989).

Early education programs for disadvantaged preschoolers are supported federally in a variety of ways. The largest single program for preschoolers is Head Start which currently serves close to half of all four-year-olds who live in poverty. The 1990 reauthorization of Head Start provided for incremental funding increases over four years that would, if appropriated, allow the program to serve all eligible preschoolers by 1994.

The U.S. Department of Education encourages the use by school districts of Chapter 1 funds to provide preschool education for children who are at educational risk. Other federal programs, such as the Department of Agriculture, Child and Adult Care Food Program, provide additional subsidies for preschool education programs (as well as other early childhood programs in day care centers and homes).

At the same time, a growing number of preschoolers from low-income families will need job-related child care, as the requirements of the 1988 Family Support Act JOBS program are implemented. The legislation requires states to develop a JOBS program to provide AFDC recipients whose children are three or older with the education, training or employment experience they need to become economically self-sufficient. Participants are guaranteed

subsidized child care while they are enrolled in the program and for 12 months after they leave the welfare rolls. Day care for poor families in which mothers are working out of the home or in training is also federally supported through block grants to states, as well as through the Earned Income Tax Credit (EITC) which may be used to subsidize work related child care for families at all income levels.

As a consequence of these and other initiatives, an increasing proportion of preschool children participate in an organized early childhood program of some kind. More than half of all three- and four-year-olds are enrolled in an early childhood program. This holds true for children in poor as well as more affluent households (National Child Care Survey, 1990 - unpublished calculations). The programs that are included in this category are very heterogeneous, varying in size, auspices, length of program as well as primary mission. Do they provide a similar experience for poor children?

One danger in the parallel expansion of two different kinds of programs (i.e. intervention programs for children at risk vs. job-related child care) is the possibility that, simply by chance, some disadvantaged preschoolers will end up in lower-quality programs that do not support their optimal development, while others participate in Head Start or other intervention programs specifically designed to promote their readiness for school. The Committee for Economic Development warns of the need to abolish the distinctions and differences in quality between early childhood education and day care programs:

> **Quality early childhood education should be available to all children who may not otherwise get adequate preparation for formal education from their families.** All children need to experience successful physical, social, emotional, and cognitive development to be able to embrace educational and social opportunities successfully. Whether called *child care, early childhood education,* or *preschool,* all programs for young children should be developmentally appropriate and focus on their educational needs. Public school systems should recognize the importance of early childhood education to their educational mission and help to ensure that quality programs are both available and accessible to all children who need them. (CED, 1991, p. 6)

Little information currently exists about the early childhood experiences of disadvantaged preschoolers. Two recent studies have expanded our understanding of child care and early

education settings nationally. The 1990 National Child Care Survey (NCCS) and the Profile of Child Care Settings (PCCS), both large-scale national surveys, the former of parents, the latter of child care providers, have provided a comprehensive account of the demand for and supply of child care nationally (Willer, et al., 1991). The National Child Care Staffing Study (NCCSS) examined in great detail the characteristics and working conditions of child care staff as well as their effects on the quality of center-based child care. However, neither study focused specifically on programs that serve children living in poverty. Thus, while there is a growing emphasis on the importance of the preschool experience for these children and increased demand for programs, it is not clear that the programs that serve poor children are uniformly adequate to prepare them for school success, that is to ensure their physical, social, emotional, and intellectual readiness for the school experience.

The Observational Study, by including all types of center-based programs that serve disadvantaged four-year-olds offers, for the first time, a comprehensive examination of children's experiences in these different settings.

Programs for Disadvantaged Four-Year-Olds: A Context for the Study

The focus of the Observational Study is on disadvantaged four-year-olds and the early childhood programs in which they participate. The major program types that serve these children are: Head Start; school-sponsored early childhood programs; and child care centers. Almost all rely on public funding for the services they provide. These programs, although they play an important role in the lives of young children from poor families, represent only a fraction of early childhood programs nationwide. In every state, the vast majority of child care and other early childhood programs are privately-funded and serve children from predominantly middle-class families. They are remarkably heterogeneous in terms of the auspices under which they operate, the demographic characteristics of the families they serve, their status as for-profit or non-profit, and the number and ages of children served, among other things.

We have limited information about the subset of programs that focus on children from low-income families. We know that, as a group, they differ from early childhood programs

nationally in several important respects. They are more likely to serve only three- and four-year-old children, as opposed to a wider range of ages. They are more likely to provide health and dental services as well as developmental assessment. Staff in programs that serve low-income children are more likely to have an Associate's degree or a Head Start Child Development Associate (CDA) credential than are staff in early childhood programs nationally (Kisker et al., 1991).

Head Start

Of the three kinds of programs, Head Start is the one about which most is known. Begun in 1965 as a summer program for preschool children in the nation's poorest counties, Head Start provides educational, health, nutrition and social services to preschool children and their families. Most Head Start centers operate half-day programs on a calendar that closely follows the school year. Originally intended for children of non-working mothers, the program is encountering increasing pressure to extend coverage to meet the needs of working mothers.

In 1992, Head Start will serve about 622,000 preschoolers, more than 95 percent of whom come from families living below the poverty level. About two-thirds are four-year-olds, one-quarter are three-year-olds and the remainder are five-year-olds. Thus, of the approximately 800,000 four-year-olds described by the 1990 Census as living in poverty, almost half are participating in Head Start. Because the grantees originally funded at the program's inception continue to operate the program at the local level, and because of the strong levels of parent involvement in the program, Head Start programs are often deeply embedded in the life of their community. Head Start centers are found in a variety of locations including churches, community centers, YWCAs, schools, and public housing projects.

Head Start programs and staff are governed by a set of detailed program standards promulgated, disseminated and monitored by the Head Start Bureau. The program mandates parent involvement in the classroom and in decision-making about the program. As a result, over one-third of Head Start staff nationally are former Head Start parents. A social worker linked to one or more Head Start centers provides referrals for social services to Head Start

families that need them. Head Start has also developed a credential (the Child Development Associate or CDA), and a procedure for obtaining it that has been influential in raising the standard of teaching in the program and has also provided a career ladder for paraprofessionals in the program.

School-Sponsored Programs

Spurred by the success of Head Start, more than half of the states in the nation, as well as some major cities, now support preschool programs for disadvantaged children in their state. Most, though not all, are operated by school districts and located in school buildings. State and local investments in early childhood vary widely, with some states allocating very limited funds for a small number of pilot programs and others, such as New York State, funding extensive prekindergarten programs. Recently, the U.S. Department of Education has encouraged school districts receiving Chapter 1 funds to allocate some of these funds to preschool programs. The goal of many of these programs is enhanced school readiness, broadly defined to include physical, social, emotional and intellectual competence. Many borrow elements of the Head Start model and include some of the nutritional and health services provided by Head Start. They, too, often stress parent involvement, though less in the governance of the program than as participants in the child's educational experience. Most programs are part-day and part-year, though some provide full-day coverage to meet the needs of working mothers.

There are approximately 5,500 early childhood programs sponsored by the public schools, according to the PCCS study (Kisker et al., 1991). No single set of regulations governs these programs. Generally, state or city Departments of Education develop program regulations and guidelines for their individual programs; school districts may add their own requirements. In many states school-sponsored programs are not required to meet the licensing requirements for day care programs, although they must usually meet the health and safety standards for public schools.

Child Care Centers

Unlike the preceding two program types, whose historic mission is to enhance the school readiness of low-income children, the third group of programs combines a focus on children with the provision of job-related care that meets the needs of parents. Most programs offer full-day care, five days a week, year-round, and serve families at all income levels. Although preschoolers are the group most commonly served, many centers provide toddler care and some care for infants. These programs are governed by state and local licensing regulations which differ considerably from state to state. Often, though not always, licensing regulations require that programs have an educational component and may require or encourage programs to offer social service or health referrals to meet families' needs. Programs may be sponsored by a variety of institutions: community action agencies, other local agencies, churches, and universities, or they may be independent entities.

Child care centers that provide care to children from poor families often receive all or part of the fees from a state or local agency. Many state and local authorities subsidize child care for parents in low-income families who are working out of the home, in school or in training. In addition, states may purchase child care for children who are at risk for child abuse or neglect. Of the three program types, this is the only one where low-income parents may bear some of the costs of care, depending on family income and the location of the program. Subsidies often bring with them additional requirements; as a result, child care centers that provide care to low-income or other at-risk children often look more like Head Start programs than do their unsubsidized counterparts. No reliable information exists on the number of centers across the country that serve children from low-income families, nor on the number of preschool children who receive care in them.

CHAPTER TWO

STUDY DESIGN

The Observational Study of Early Childhood Programs was designed to describe the classroom experiences of economically or educationally disadvantaged four-year olds and to examine linkages between characteristics of early childhood programs and what happens in the classroom. In addition, the study sought to investigate issues surrounding the quality of the early childhood experience--how to define quality, how to measure it, and how it is influenced by characteristics of early childhood programs, classrooms and staff.

This chapter begins with a discussion of what constitutes "quality" in the early childhood environment and what previous research tells us about the factors that affect the quality of the child's experience. The design of the study and the selection of measures for the study are also described. The chapter ends with a brief description of the programs in the study.

Defining Quality

What constitutes quality in an early childhood program for disadvantaged preschoolers? At its core are experiences that promote the child's physical, social, emotional, and intellectual development. What those experiences are or should be is a question that developmental theorists and early childhood researchers have tried to address over the last 30 years.

From an amalgam of developmental theories and research evidence, a consensus has begun to emerge about what experiences represent "quality" in early childhood environments. The National Association for the Education of Young Children (NAEYC) has taken these elements of consensus and presented them in detail in two influential publications: *"Accreditation Criteria and Procedures for High Quality Early Childhood Programs"* (Bredekamp, 1984) and *"Developmentally Appropriate Practice in Early Childhood Programs Serving Children from Birth Through Age 8"* (Bredekamp, 1987). They have thus begun to break down one of the barriers to research in this area--the challenge of developing comprehensive definitions of classroom processes. These processes include: the amount and content of staff interaction with children, the content of interactions among children, the

emotional tone of the classroom, the ways in which children are grouped in the classroom, and the types of activities available to them.

Beginning with the premise that children's development is enhanced by supportive and individualized relationships with adults and by positive interactions with peers, NAEYC guidelines prescribe:

- frequent, positive interaction with children (smiling, touching, holding, speaking at children's eye level);
- prompt response to children's questions or requests (minimizing waiting);
- encouragement of children to share experiences, feelings and ideas;
- attentive, respectful listening;
- teaching strategies that include the use of open-ended questions, adding more complex materials or ideas, interaction with individuals or small groups rather than with the group as a whole;
- the use of positive guidance techniques (modelling and encouraging desirable behavior, redirecting children to more acceptable activity or behavior, consistent, clear rules rather than criticism, punishment, or humiliation); and
- encouragement of appropriate independence (having children clean up after playing, wash their own hands, put on outdoor clothes).

The guidelines prescribe that staff demonstrate in their interactions respect for ethnic, cultural and religious differences and avoid gender stereotyping in children's activities. The teacher should structure and encourage an environment marked by pleasant conversation and spontaneous laughter, neither too loud nor too quiet, in which children are comfortable, relaxed, and involved in play. Both the environment and the teacher's behavior should promote prosocial interactions. Children should be offered a variety of concrete learning activities, be free to select many of their own activities, and work individually or in small groups most of the time. They should be expected to be physically and mentally active rather than to spend long periods of time sitting down, watching, listening, or waiting.

For the first time, from these two publications, it is possible to construct a clear image of how a good classroom environment for preschool children looks and sounds, and to understand how those effects might be produced.

Guided by their descriptions, for the purposes of the study, we identified three key aspects of the child's experience in the classroom that contribute to the overall quality of that experience: the pattern and content of activities and groups across the day, the behavior and interactions of teaching staff, and the behavior and interactions of children in the classroom. These formed the basis of the conceptual model (Exhibit 1) that shaped the design of the study. We then moved on to a consideration of aspects of the program that might influence these aspects of the child's experience.

What Factors Influence the Child's Classroom Experience?

Discussions about the quality of early childhood programs often confuse the program elements that influence quality with quality itself. They are written and spoken of in a kind of shorthand as if they constituted rather than predicted quality. For example, a low child/staff ratio (fewer children per teacher) is often referred to as if, by itself, it were an aspect of quality, rather than a possible predictor of a high-quality experience. One of our goals for the Observation Study was to untangle this confusion by separating program elements from the types of interactions and processes they might be assumed to produce.

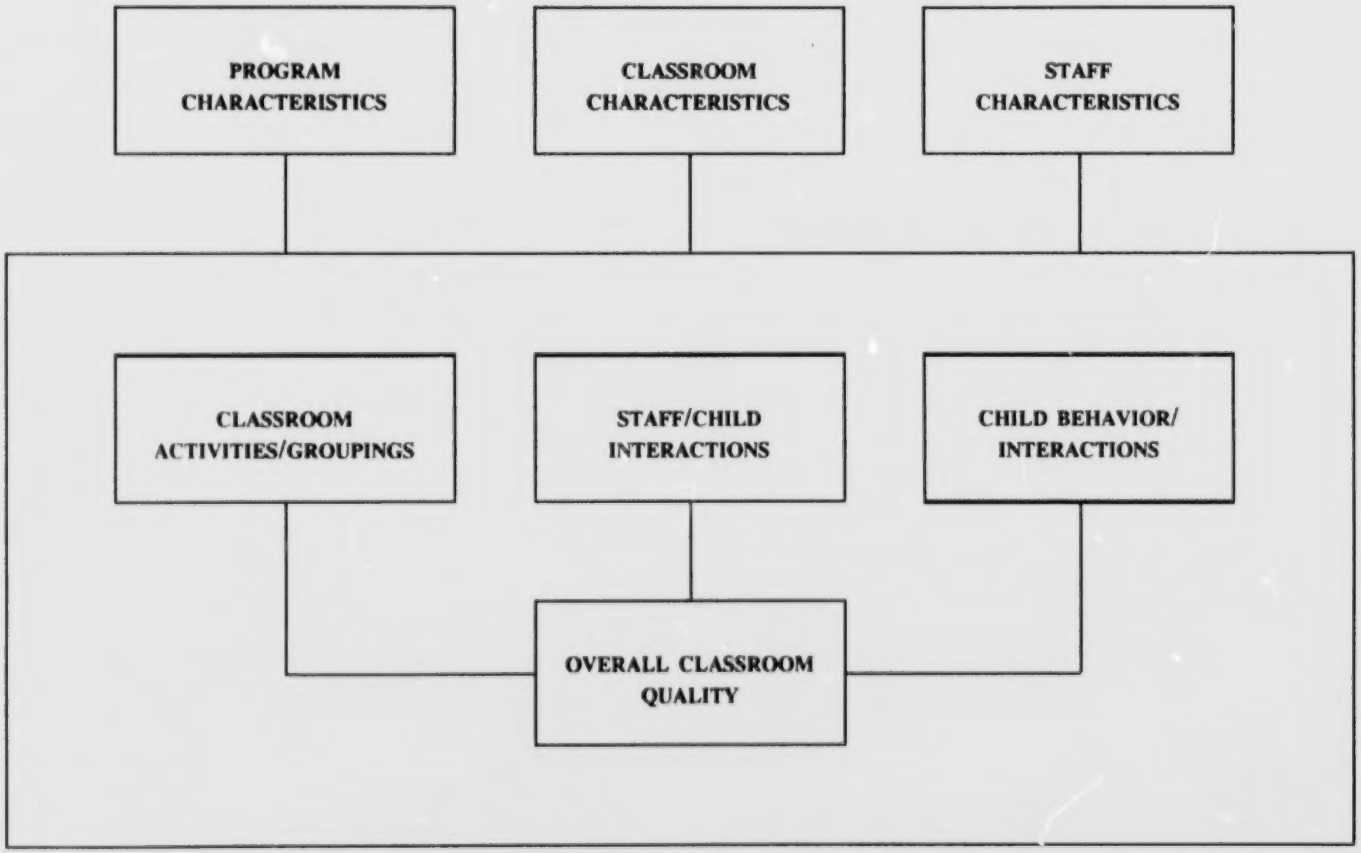
The aspects of early childhood programs that have been shown by research or identified by expert opinion as actual or potential influences on the quality of the classroom experience can be grouped into three categories: characteristics of the program; characteristics of the classroom; and characteristics of staff. Here we review, for each of the three categories, the elements most often cited in the research literature as important and usually, though not always, supported by some evidence of a relationship to the quality of the classroom process or to child outcomes.

Program Characteristics

Several aspects of the overall program are identified in the literature as potential indicators of quality. They include: the program's philosophy and goals, and the curriculum

Exhibit 1

Aspects of the Child's Classroom Experience



that embodies them; program leadership; involvement of parents in the program; ancillary services provided; and the content and intensity of staff development and in-service training programs.

Program Philosophy and Curriculum. There is a widespread conviction among developmental psychologists and specialists in early childhood education that a program's philosophy, and the curriculum that embodies that philosophy, can significantly affect the quality of the child's experience. However, there is no general agreement on a single ideal approach, nor does research offer much support for one.

Research does suggest, however, that different approaches or different emphases affect different areas of the child's development. For example, both Clarke-Stewart (1980) and Prescott (1973) compared closed (highly adult-structured) curriculum models with open (child-centered, "discovery" programs) models. In programs that were highly adult-structured, children showed less independence and less initiative but performed better on intelligence and achievement tests. By contrast, children in "open" programs were more independent and persistent and performed well on tests of inventiveness and problem-solving. Snow (1983) reported that children in moderately-structured programs demonstrated gains in creativity and self-esteem as well as on cognitive and achievement tests. A review of the literature conducted by the National Academy of Sciences (NAS, 1990) concluded that a range of preschool curricula can facilitate children's intellectual development, particularly for "high-risk" children. By contrast, different curricula have varying effects on childrens' social development. In programs where children initiated and paced their learning activities, social adaptation was greater than in teacher-directed programs.

The National Association for the Education of Young Children (NAEYC), in its *"Position Statement on Developmentally-Appropriate Practice in Programs for 4- and 5-year-Olds"* (Bredekamp, 1987), supports curriculum models that encourage learning through active exploration rather than verbal instruction and opposes rote learning exercises such as alphabet or numeral drill or recitation of information on the grounds that children's responses do not reflect real understanding of the information. The association articulates a philosophy broadly

based on the work of developmental psychologists such as Piaget, Montessori, Erikson, Elkind and Kamii that states:

> Young children learn by doing...Children acquire knowledge about the physical and social worlds in which they live through playful interactions with objects and people... The correct way to teach young children is not to lecture or verbally instruct them...[Teachers of young children] prepare the environment so that it provides stimulating, challenging materials and activities for children...then closely observe to see what children understand and pose additional challenges to push their thinking further (Bredekamp, 1987, p. 51).

Sensitivity to the ethnic, cultural, and linguistic diversity of the United States is an aspect of program philosophy that is receiving increased attention. The NAEYC accreditation standards require recognition of and respect for each child's unique cultural heritage; arguing that "culture provides a source of identity, a framework for interpreting the world, the basis for a feeling of belonging, and the basis for aesthetic values" (Bredekamp, 1984, p. 9). However, beyond specifying that materials used in the early childhood classroom reflect the heterogeneity of American society, the standards offer little guidance on what programs must do to achieve this goal or how its achievement might be assessed.[1]

The National Black Child Development Institute (NBCDI) is somewhat more specific in its guidelines for school-based preschool programs:

> Each day in the class, there should be evidence of consistent, positive acknowledgement and appreciation of the cultural history of Black children through the use of well-chosen visual aids, books, records, and other learning material (NBCDI 1987, p. 11).

In addition, the guidelines recommend that staff in early childhood programs include teachers and administrative staff drawn from the community served by the program, who are racially and ethnically representative of the children served.

The philosophical positions and curriculum approaches articulated by NAEYC and NBCDI have been adopted by many early childhood programs. However, the extent to which

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[1]A recent revision of the standards identifies additional indicators to guide practitioners.

they influence children's experiences and development depends on several factors. First, they must be embodied in a detailed curriculum plan that deals not only with planned activities but with the availability and use of materials and the use of transitions and routine daily tasks as opportunities for learning. Second, the philosophy and goals of the program must be clearly transmitted to program staff, operationalized through training activities, and reflected in staff behavior in the classroom. Finally, curriculum goals and plans need to be adapted to the needs of individual children as well as to the needs of the group.

Program Leadership. Educator Ellen Galinsky writes that in every exemplary child care program she visited, she found "a special kind of person who seemed to act almost like a magnet, a unifying force. These people (we came to call them leaders) had a vision, a picture of the child care they wanted to create and were willing to work hard for" (Galinsky, 1986). The effects of leadership have scarcely been studied in the early childhood field, although its importance at the elementary and secondary school level has been established (David and Peterson 1984; Cohen, 1988; Leithwood, 1990; Wilson and Corcoran, 1988). The study of the effects of the Perry Preschool Project cites evidence that competent leadership, including supportive supervision, is an essential element of overall program effectiveness (Berrueta-Clement et al., 1984).

Parent Involvement. Since the mid-1960s, educators and policymakers have focused on parent involvement as a promising way to improve educational outcomes for poor or underachieving students. Parent involvement has been cited by a number of researchers as a component of preschool programs that supports the persistence of gains achieved by children in preschool (Collins, 1984; Schweinhart, 1988; Berrueta-Clement et al., 1984; NAEYC, 1986; and Galinsky, 1986). Over the last twenty years, a variety of models and strategies to promote parent involvement have been implemented. Goodson and Hess (1978) identified five approaches to parent involvement used by programs operating in the 1970s. More recently, McLaughlin and Shields (1986) have suggested two broad approaches to parent involvement:

- the advisory approach -- parent involvement is primarily through advisory councils;

- the collaborative approach--parents are involved as partners in their children's education, either as classroom aides or as teachers or tutors in their own homes.

A substantial body of research exists on the effectiveness of these different approaches in meeting the goal of improving developmental outcomes for low-income children. However, the research findings show inconsistent effects across different approaches, program philosophies and family characteristics.

Parent involvement through advisory councils has generally been tied to mandates for parent involvement in Federal compensatory education programs (McLaughlin & Shields, 1986). Federal programs such as Head Start require that parents or community members play a role in program development and implementation at the local level, to ensure that programs are more accountable to the needs and interests of low-income parents and consequently more effective for low-income children. The evidence of effectiveness for programs that implement this advisory model is mixed. Parent participation in decision-making or in advisory roles has been linked to positive effects in a few programs (Armer, et al., 1977; Herman & Yeh, 1980), but, overall, this type of parent involvement has not been shown to be related to the success of compensatory education programs (Wagenaar, 1977; NIE, 1985; McLaughlin & Shields, 1986). Studies of parent involvement suggest that the type and intensity of participation by council members varies widely across programs and that, frequently, participation has involved a perfunctory review of plans developed by program administrators. Relationships between parent involvement, positive program practices and outcomes for children are more likely in programs where there is evidence of active parent involvement in meaningful program decisions (Melaragno et al., 1981; McLaughlin, Shields and Regabek, 1985).

Collaborative or partnership models may be school-based or home-based. School-based partnership models, in which parents function as classroom aides or volunteers, have reported mixed success in promoting child development and performance. By contrast, there is consistent evidence that home-based partnership models, in which parents are trained as teachers of their children, are effective in producing short-term gains for low-income children. Involving parents

as home-based tutors appears to provide many direct benefits for low-income parents and children (McLaughlin and Shields, 1987; Seeley, 1984; NEA 1985; Tongri and Moles 1988).

A different approach to involving parents is one that focuses on increasing parents' knowledge about children's development and about their own roles as "first, best teachers." Parent education has been shown in a number of studies to be associated with positive outcomes for children and for the parent. Powell (1986), summarizing findings on the effects of parent education programs from a number of studies, reported strong short-term effects on children's cognitive development and performance. (For detailed literature reviews, see Clarke-Stewart and Apfil, 1978; Gary and Wandersman, 1980; and Dembo, Sweitzer, and Lawritzen, 1985). Research also suggests short-term positive effects on maternal behavior and attitudes. For example, as a result of participation in parent education activities in the Child and Family Resource Program (CFRP), mothers showed increased awareness of their role as educators and voiced greater aspirations for their own and their children's education (Travers, Nauta & Irwin, 1982). Lazar (1981) suggests that lasting effects of early preschool programs are due in large part to changes in the values and aspirations parents hold for themselves and for their children.

Evidence of long-term effects of parent education programs is weaker. While there is no evidence that short-term improvement in children's cognitive skills is maintained after the program ends (e.g., Levenstein, O'Hara & Madden, 1983), there are indications that children of parents involved in long-term education programs are less likely to be referred to special education in elementary school (Seitz et al., 1983; Jester & Guinagh, 1983).

Although the research supporting parent involvement as an indicator of quality is inconsistent, it continues to be a program characteristic cited by experts as an important element in high-quality early education and in retention of gains made by children in early childhood programs.

Supportive Services. Early childhood programs for disadvantaged children may provide an array of services to children and families, in addition to their educational and care functions, either directly or through referral. These include: health screening, social services, and family and individual counseling. Research is lacking on the additive effects of these services on either

children or families, although the concept of "integrated services" in early childhood and early intervention programs is increasingly emphasized in legislation at federal and state levels. Programs such as Even Start, the Comprehensive Child Development Program and Head Start's Family Service Centers exemplify this approach of embedding an early childhood program in a more comprehensive program that meets the needs of both parents and children for a variety of educational, health, and social services.

In-Service Training/Staff Development. Although the effects of in-service training or staff development have not been the subject of early childhood research, it is increasingly a feature of new programs that strive for excellence. For example, the Giant Step program, an innovative program for disadvantaged preschoolers in New York City, provided 20 days of in-service training a year for all program staff and regarded training as a critical tool in building staff competence, communicating fully the goals of the program and unifying the staff. Good in-service training is seen as promoting staff growth both through the acquisition of new ideas and techniques and through the opportunities to explore these ideas and techniques with colleagues.

Classroom Characteristics

Classroom characteristics fall into two major categories: the composition of the classroom in human terms; and physical characteristics. There are four elements in the composition of the classroom that influence the child's experience and that may affect the quality of that experience: child-staff ratio; group size; the number and type of staff; and the age-mix of children in the group. While each of these is discussed separately here, the likelihood is that they interact with each other in ways that research has only recently begun to illuminate.

Child-Staff Ratio. Ratios of children to staff have traditionally been regulated on the assumption that low ratios (fewer children per caregiver) facilitate positive and more individualized interactions between teachers and children, with consequent developmental gains for children. In an early naturalistic study of day care centers in Los Angeles, Prescott (1973) found that child/staff ratios of 1:1 to 5:1 were associated with more child-initiated behavior; more adult attention and feedback to children; more attention by children to adults and less

looking around; fewer stereotyped responses; less awareness of social constraints and more attention to other children than were centers with ratios ranging from 6:1 to 16:1. However, Prescott and her colleagues did not label the behaviors associated with low child-staff ratios "good" as opposed to those associated with high ratios, and in a later publication they conclude: "Although personally favoring an ample supply of adults, we have not been convinced by our data that adult-child ratios of 1:5-8 are predictably superior to those of 1:10-12" (Prescott et al., 1976).

The National Day Care Study (NDCS: Ruopp et al., 1979) found that child-staff ratio alone as a determinant of quality was not as important as group size for preschool children (for ratios in the policy-relevant range of 5:1 to 10:1). However, other more recent research studies have identified child-staff ratio as a significant indicator of quality. It was one of three important factors associated with quality identified by Howes (1983). Vandell and Powers (1983) found that children in centers with ratios averaging 5:1 were more likely to interact with and initiate conversations with adults, had more positive interactions with adults, and engaged in less solitary and unoccupied behavior than children in programs with ratios of 14:1 and 24:1. The National Child Care Staffing Study (Whitebook et al., 1990) found child-staff ratio to be a significant predictor of teacher-child interaction. These findings suggest that ratio emerges as a significant element of quality in its own right when the range of ratios examined is sufficiently wide.

Group Size. Like child/staff ratios, group size traditionally has been regulated by state and federal authorities because of belief that smaller groupings are more beneficial for children. Until the NDCS, there was little research evidence to support specific group sizes, although several earlier studies suggested that large groups are associated with high levels of aggression and conflict among children. The NDCS found that group size was the most important predictor of the child's experience. Group size was associated with differences in both staff and children's behavior and children's performance on two standardized tests of cognitive and language development. In smaller groups, children were more cooperative, more responsive to initiatives by adults and other children and more spontaneously verbal. Children in smaller groups were also less likely to be involved in aimless wandering or to be uninvolved in any activity. Staff

spent more time in interaction with children and less time simply watching them. Smaller groups were also related to higher scores on standardized tests. Because child-staff ratio became important when considered in relation to group size, the NDCS recommended that group size and staff-child ratio be considered inextricably related and regulated jointly.

Group size has been a variable of interest for many other researchers (Howes and Rubinstein, 1985; Stith and Davis, 1984; Clarke Stewart and Gruber, 1984). Later research has generally supported the findings of the NDCS (Phillips and Howes, 1987), although most recently the National Child Care Staffing Study (Whitebook et al., 1990) failed to find a relationship between group size and scores on global measures of the quality of the classroom environment.

It is of particular interest that the NDCS findings held for three-, four- and five-year olds and that the proposed regulations were the same for all three age groups. The NAEYC recommendations for group size and child-staff ratio are based on the findings of the NDCS and propose the same ratios and similar groups sizes for all three age groups. In several states and many school-based programs, however, acceptable group sizes for five-year olds increase sharply and child-staff ratios are higher. As group size increases, it becomes more difficult to meet the requirements of developmentally-appropriate practice (for example, to spend most of the time speaking to individual children; to work with children in small groups).

Number and Type of Staff. In many early childhood programs, both the number and type of staff can change dramatically during the course of the program day. In some full-day programs, fewer, less-qualified staff may supervise children in the afternoon. Often the staff member parents encounter at the end of the day is not the person who supervised the children for the major portion of the day, so there can be little meaningful exchange of information about the events of the child's day. In their evaluation of Project Giant Step in New York City, Layzer et al. (1990) found that, in school-based programs, teachers or aides without early childhood qualifications or experience were used to fill in for as much as 40 minutes of teacher preparation time (in a half-day program) as well as during lunch. Moreover, children might interact with several different substitute teachers or aides in the course of a week. Little

attention has been paid to this issue in the research literature, although the more general issue of staff stability has received considerable attention.

Staff Continuity. The importance of stable caregiving relationships has been stressed repeatedly in the literature on child care and early childhood. Children exposed to a succession of caregivers become at risk for social and emotional problems (Galinsky 1986). Michael Rutter, in his studies of children in high-stress environments (Rutter, 1966, 1983, 1984), has suggested that continuity and the close relationship of the child with a mentor is one of the most critical factors in determining the child's successful development. The National Child Care Staffing Study (NCCSS) found that high staff turnover in centers of lower quality had a negative impact on children's language and social development. Nationally, staff turnover in early childhood programs is increasing because of low wages, inadequate benefits and limited opportunities for professional growth. The NCCSS reported that the overall average annual rate of teacher turnover was 25 percent. However, the average masks great variability among centers in turnover rates; half of all centers reported no turnover in a 12-month period. The remaining half of the centers that reported turnover, lost, on average, half of their teachers in a 12-month period.

Staff turnover has differential effects depending upon when it occurs. If the same teacher is present during the year the child spends in the group and then leaves, the child has experienced continuity in care although the program may suffer. It is difficult to build and integrate a staff, faced with rapid turnover. However, if teachers or aides leave part-way through the year, the child is confronted with the problem of adjusting to a new adult. In addition, as noted earlier, children may experience a variety of teachers or teacher substitutes depending on the policy of the program. Ideally, one would want to look carefully at the continuity of care across the day, across days of the week, and across the year.

Age-Mix of Children. In group programs, as opposed to family day care, age-mixing of children is the exception rather than the rule and has received little research attention. Occasionally day care centers will have a combined class of "old three" and "young fours" in addition to classes for three-year-olds and four-year-olds. Some school-based programs are also experimenting with mixed-age groupings. Belsky (1978) cites two studies that suggest that age-

integration in preschool and toddler groups can have beneficial effects and that "conflicts are more common and long lasting in age-segregated groups, and there is less affection and teaching and more competition in such groupings."

Classroom Physical Characteristics. Several aspects of the physical environment have been cited in the early childhood literature and some appear in state regulatory codes as indicators of quality. While, in general, regulations focus on aspects of the physical environment relevant to health and safety, regulatory codes also cover age-appropriate educational materials and play equipment, or include space requirements that go beyond those needed for safety.

The research literature provides partial support for the use of environmental indicators. For example, several studies indicate that aggression, passivity/avoidance, and other forms of undesirable behavior in preschoolers decrease as indoor area per child rises from around 20 to 40-50 square feet (Rohe and Patterson, 1974; Prescott and David, 1976). The actual design of the space also needs to be considered. Galinsky (1986) notes that the best child care guards against the feeling of institutionalization by breaking space into interest centers and providing areas where children can have privacy within the group setting. Prescott (1976) has also described ways in which the physical arrangement constrains the activities of staff and children and has reported that environmental "softness" (accessibility of warm, flexible, and malleable objects and substances--sand, water, playdough, pets, etc.) is associated with a number of other desirable features of early childhood programs.

More recently, Rinaldi, in a description of a notably successful city-wide, school-based early childhood program in Reggio Emilia, Italy, has called the classroom environment "the third teacher":

> It is essential that the environment can provide conditions for being together and being separate; can handle large meetings and small, intimate gatherings; is capable of providing a sense of security as well as a desire for adventure; and can answer [not only] the children's needs--but also those of adults... (Rinaldi, 1992, p.10).

The availability and accessibility of age-appropriate toys, materials and equipment that foster the development of specific skills and self-confidence are often cited as environmental

indicators of quality. As noted earlier, there is increasing emphasis on the use of materials that reflect ethnic and cultural diversity (Bredekamp, 1986; BCDI, 1987).

Staff Characteristics

Perhaps the most important influence in shaping the day-to-day experience of the child in an early childhood program is the teacher or caregiver. The qualifications of early childhood staff--experience, training, and formal education--are of interest not as measures of quality in themselves but because they are thought to increase the probability of competence and hence to affect the quality of the child's experience and enhance his/her development. The NDCS found that staff training in early childhood education or child care was a more important predictor of the quality of adult interactions with children than years of formal education alone. Staff with specialized training were more likely to spend time in social interaction with children--praising, comforting, responding, questioning, and instructing. Children whose caregivers had specialized training were more cooperative, more persistent, less frequently uninvolved, and scored higher on standardized tests.

More recently, the NCCSS found that the formal education of the teacher was a stronger indicator of some positive aspects of teacher behavior. For all the age groups studied, teacher sensitivity, harshness, and detachment were best predicted by formal education; specialized training was an additional predictor of these behaviors only in classrooms for infants. Both studies found moderate to high correlations between years of formal education and child-related training (Whitebook, et al., 1990).

Selection of Measures for the Study

At the heart of the Observational Study are the dynamic processes and experiences that occur in early childhood classrooms--aspects of early childhood programs that can best be measured through direct observation. Faced with the complex and expensive task of measuring the early childhood experience and the aspects of programs, staff and classrooms that may influence it, most researchers have been forced to adopt one of two strategies: either they have used information about programs obtained through interviews with parents and providers to make

indirect inferences about the quality of the program; or they have used "global" measures to assess the program directly. (Global measures of quality such as the Early Childhood Environment Rating Scale [ECERS] rate programs on a series of items that often pack together the physical space and materials and teacher's behavior. The observer can complete the assessment on the basis of a half-day or less of observation and the product is a single score. The measures are intended to be evaluative and cannot be used descriptively.)

While both strategies can provide useful information, they can tell us little about the nature of the child's experience in the classroom--the pattern of activities throughout the day; the amount and quality of supervision; the nature of interactions between children and teachers and among children; and children's solitary behavior with materials and equipment. Norton Grubb, in a paper prepared for the U.S. Department of Education, identifies the problem:

> While information from parents or providers can provide useful data about the programs children are in, much of which can be used to make inferences about the quality of programs, they cannot yield information about more subtle dimensions of quality or the nature of the "curriculum" which is embedded in the rhythm of activities throughout the day, the nature of interactions between children and teachers or among children, and the physical layout of facilities and the equipment available, more than in curriculum frameworks or textbooks. These dimensions of programs for young children can be described only through observational studies, where trained observers collect detailed qualitative (but codeable) information from a variety of institutions (Grubb, 1989, p. 42).

The questions that shaped the design and selection of measures for the Observation Study mandated consideration of observation measures that went beyond the global assessment of classrooms. To study program dynamics, i.e. the interactions and activities that take place in early childhood classrooms, we needed measures that would allow us to capture and describe six aspects of the child's experience:

- child groupings;
- the flow of classroom activities;
- children's transitions;
- caregiver behavior and interactions;

- interactions among children; and
- children's engagement in classroom activities.

Our review of existing instruments revealed two major gaps. None of the instruments that we reviewed allowed us to capture and describe the nature of children's experiences in the early childhood environment, in terms of their interactions with adults, with peers, and with materials. In addition, none of the instruments that we reviewed captured, in a descriptive way, teachers' behavior with children.

For these reasons, we elected to develop **two new measures** for the study: **one** that would focus on staff in the classroom--their use of time, interactions with children and teaching techniques; and a **second** that would allow us to code in detail the behavior of children in the classroom. Together with several widely-used global and evaluative measures of classroom quality, a measure of teachers' emotional tone, and a measure of classroom structure, groupings and activities, these measures allowed us to capture and record a vast quantity of information about early childhood classrooms.

The observation instruments selected for the study are:

- Preschool Classroom Snapshot (adapted)
- Abt Associates' Adult-Focused Observation (new)
- Abt Associates' Child-Focused Observation (new)
- Abt Associates' Rating of Developmental Appropriateness of Preschool Classrooms (new)
- Assessment Profile for Early Childhood Programs (Abbott-Shim & Sibley)
- Early Childhood Environment Rating Scale (ECERS) (Harms & Clifford)
- Global Rating Scale of Caregiver Behavior (Arnett)

Each is described below.

The **Preschool Classroom Snapshot**, based on the SRI Classroom Snapshot (Stallings, 1985), records the activities and groupings of all adults and children in the classroom at a given moment. The observer allocates all individuals in the classroom across twenty-four activities and indicates the size of the groups (numbers of children and adults) engaged in each activity. The instrument also provides a measure of the child-staff ratio at the time of the Snapshot and identifies the number of children fighting, crying, arguing or being comforted or disciplined. Multiple Snapshots are recorded for a classroom, on a regular basis. A modified version of the instrument is being used by the New York City Board of Education.

The **Abt Adult-Focused Observation** records the behavior of a target teacher in the classroom on a time-sampled basis. After a brief observation period, the observer records a number of pieces of information about the teacher's behavior, including the type of involvement with children, the number of children with whom s/he is involved, teacher verbalization and language spoken, teacher responsiveness to children, and teaching and behavior management techniques. The teacher who is the focus of the observation is observed in four activity contexts: work time or free choice time, group time, mealtime, and outdoor or gross motor play. The Adult-Focused Observation is based on an existing observation system used in the 1977 National Infant Care Study and developed by Dr. Jean Carew and Abt Associates' staff. For this study, it was modified to make it appropriate for preschool rather than infant and toddler care settings.

The **Abt Child-Focused Observation** records the behavior of children in the classroom on a time-sampled basis. The observer follows individual children, selecting them at random until all have been observed. Observations are conducted in half-hour periods, during which four different children are observed for seven and one-half minutes each. The observer records what the child is doing, the number of other children involved, and whether the child is involved in a social or a nonsocial situation. In the case of social interactions with peers, the observer also records the child's use of language and cooperative or negative social strategies; in the case of social interactions with an adult, the observer codes the types of interaction and the caregiver's tone and responsiveness. The Child-Focused Observation is a new instrument developed for the current study.

The remaining instruments are evaluative rather than descriptive and assess overall program quality or aspects of quality. The **Description of Preschool Practices** rates the developmental appropriateness of the classroom environment and the caregiver's behavior. The observer rates the classroom based on 30 items, using a five-point Likert scale. The items on the scale are based on the NAEYC *Developmentally Appropriate Practice in Early Childhood Programs Serving Children From Birth Through Age 8* (1987). An earlier version of the rating scale was developed for use in the Academic Environments Study (Hyson, 1989). The rating scale is completed on the basis of at least one day of observation of the classroom.

The **Assessment Profile for Early Childhood Programs** (Abbott-Shim & Sibley, 1987) provides a structured observation checklist to assess the overall quality of early childhood programs. The measure includes items (binary items coded as Yes/No) on safety and health, learning environment, scheduling, curriculum, interacting, and individualizing. The Profile was used in the National Child Care Staffing Study (Whitebook et al., 1990) and was adapted for use in an ongoing national study of infant care environments sponsored by the National Institute for Child Health and Development (NICHD). The Profile is completed on the basis of at least one day of observation of the classroom.

The **Early Childhood Environment Rating Scale** (ECERS: Harms & Clifford, 1978) is another measure of the overall quality of the early childhood program. The ECERS consists of 37 items covering seven areas: personal care routines of children, furnishings and display for children, language-reasoning experiences, fine and gross motor activities, creative activities, social development, and adult needs. The observer rates the classroom on each item, using a seven-point scale (inadequate to excellent). The ECERS has been used in several national studies of child care environments. It can be completed based on a half-day of observation. While there is substantial overlap in the information provided by the ECERS and the Assessment Profile, the use of the ECERS allows us to compare our findings with findings from other national child care studies that used the ECERS.

The **Arnett Global Rating Scale of Caregiver Behavior** assesses the emotional tone and responsiveness of the caregiver with children in the classroom. The scale consists of 26 items

describing the caregiver's affect, discipline style, supervision of and interest in the children. On each item, the observer rates the caregiver, using a 4-point scale. The rating scale has been used in a number of research studies, including the National Child Care Staffing Study (Whitebook, et al., 1989).

For program and classroom characteristics such as staff qualifications that could be measured through more indirect means, we chose to rely on an existing questionnaire previously used with program directors in the PCS Study and to develop a **Staff Interview** that would focus more narrowly on issues of interest for the study that are not covered in the PCCS Director Interview. The Staff Interview covers the following topics: background and experience, training and staff development, teaching approach, parent involvement, curriculum planning, leadership style of the director, and views on developmentally appropriate practices.

It is important to note here that the study did not attempt to measure every aspect of program quality. First, the observations focused squarely on quality as defined by the classroom process. There was no detailed investigation of program elements such as the health and social services provided by Head Start and other programs. Because of resource constraints, the study investigated the nature and extent of parent involvement only through interviews with teachers and program directors. Although this is a widely-used approach, it does not do justice to the increased emphasis on the importance of parental involvement in children's education. More detailed, observation-based measures of the nature and extent of parental involvement are certainly needed.

Secondly, the scope of our quality measures was partially limited by the available instruments. Although we developed two measures of classroom interaction, these measures were not intended to be comprehensive. For example, one aspect of the classroom environment that has been largely ignored is the extent to which the environment respects and supports cultural diversity and integrates children of different backgrounds. In the absence of more precise operational definitions, and of research that identifies specific behavioral and environmental indicators of cultural sensitivity that may affect child outcomes, it was difficult to go beyond the indicators identified by NAEYC or the Black Child Development Institute (i.e., materials that reflect ethnic diversity; staff that reflects the ethnicity of children). The

Observation Study therefore relied on existing measures to capture both elements. Before new measures on cultural diversity can be developed, effort must be expended to construct a theoretical framework within which aspects of the classroom environment and teacher behavior that reflect sensitivity to diversity can be defined, measured, and related to outcomes for children.

Selection of Sites, Programs, and Classrooms for the Study

The Profile of Child Care Settings study (Kisker et al., 1991), completed in 1990, provided a detailed account of the current supply of early education and child care programs in the US, derived from telephone interviews with a nationally-representative sample of more than 2,000 program directors. The sampling frame of programs constructed for the PCCS study from state licensing and national association listings offered the possibility of nesting the Observation Study within the framework of the larger PCCS survey.

The first step was to select five sites from the nationally-representative sample of 100 Primary Sampling Units used in the PCS. The five sites were not intended to be nationally representative but were chosen purposively to reflect geographic and regulatory diversity. Two other considerations influenced site selection: the need for adequate numbers of different types of programs serving four-year-olds from low-income families; and the need for sufficient numbers of early childhood programs funded by Chapter 1 to meet the requirements of a substudy of these programs. This latter requirement was influential in site selection, because of the relatively small number of school districts nationwide that are currently using substantial amounts of Chapter 1 funds for preschool programs. The five sites selected were:

- San Francisco and Contra Costa Counties (California)
- Bexar County (San Antonio, Texas)
- Dade and Broward Counties (Miami and Fort Lauderdale, Florida)
- Oakland, Wayne, and Washtenaw Counties (Michigan)
- Union, Hudson and Essex Counties (New Jersey)

Each of these was considered a single site, even if several counties were included.

Selection of Programs

To select programs for the Observation Study, we began with the approximately 3,000 centers in the PCS sample frame for the five sites. From this sample, we eliminated programs that were clearly identifiable as ineligible for the study (e.g. infant programs, after-school programs, family day homes, programs that exclusively or predominantly served children with disabilities or special needs). Only a small number of these could be eliminated automatically, because the name of the center rarely indicated clearly the focus of the program. We then conducted a telephone screening interview with the remaining centers. To be eligible for inclusion in the sample for the observation study, centers were required to meet the following criteria:

- serve a predominantly (85%) low-income population (defined as eligible for free or reduced-price meals under the Child and Adult Care Food Program or the National School Lunch Program);
- provide care for at least 12 four-year-old children;
- operate at least 4 half-days each week; and
- serve no more than 10 percent of children with handicaps or special needs.

The design for the study called for a total sample of 120-125 programs, stratified by program type: Head Start centers, school-sponsored programs, and a third group consisting of other programs that provide care for low-income four-year-olds. Child care centers predominate in this last group, but it also includes a small number of half-day preschools. For the screening survey, successive random samples of programs were drawn from each site, stratified by type of setting. About 500 programs, or one in six, passed the screening survey and were eligible to participate.

At each site, the sample of eligible providers was examined to determine the relative distribution of the three types of settings to be represented. Exhibit 2 shows the desired distribution of settings for each site, based on their proportionate representation in the population of eligible providers in that site.

Eligible providers identified through screening were randomly sorted into triplets consisting of a target and two alternate providers, all three from the same setting type. Field staff were instructed to contact and recruit first the target provider. If the target provider refused to participate, the second and third members of the triplet could be recruited.

Exhibit 2

Desired Distribution of Settings in Each Site

Site	Type of Program						
	Child Care Centers		Head Start Programs		School-Sponsored Programs		All Types
	N	(%)	N	(%)	N	(%)	N
California	13	(52%)	7	(28%)	5	(20%)	25
Texas	7	(28%)	5	(20%)	13	(52%)	25
Florida	14	(56%)	6	(24%)	5	(20%)	25
Michigan	5	(20%)	14	(56%)	6	(24%)	25
New Jersey	7	(28%)	8	(32%)	10	(40%)	25
Total	46	(37%)	40	(32%)	39	(31%)	125

Description of Programs

The final sample for the study consists of 119 randomly-selected programs from five sites. Exhibit 2 shows the distribution of programs by type within each of the five sites. The highly comparable percentages in Exhibits 2 and 3 indicate that the sampling and recruitment strategy was successful in reflecting accurately the distribution of programs in each site. The programs were selected to represent proportionately the three types of care settings for disadvantaged four-year-olds. The sample of school-sponsored programs includes 16 preschool programs funded through Chapter 1.

The total sample was approximately evenly distributed among the three program types. Within sites, the distribution of program types differed widely; in the Texas site, four-year-olds from low-income families were twice as likely to be in early childhood programs sponsored by school districts as they were to be in child care or Head Start programs. The situation was reversed in Florida, where child care programs or private preschools were the predominant care settings, and in Michigan, where Head Start programs were twice as numerous as child care or school-based programs.

Exhibit 3

Actual Sample of Participating Programs by Site and Program Type

Site	Type of Program						
	Child Care Centers		Head Start Programs		Schools-Sponsored Programs		All Types
	N	(%)	N	(%)	N	(%)	N
California	13	(50%)	7	(27%)	6	(23%)	26
Texas	7	(28%)	5	(20%)	13	(52%)	25
Florida	12	(55%)	6	(27%)	4	(18%)	22
Michigan	4	(18%)	13	(56%)	6	(26%)	23
New Jersey	6	(26%)	8	(35%)	9	(39%)	23
Total	42	(35%)	39	(33%)	38	(32%)	119

Selection of Classrooms and Staff

From each of the programs recruited for the study, a single classroom was randomly selected. Although it would have been possible, given a week of observation time, to observe in more than one classroom, we would expect considerable similarity among classrooms serving four-year-olds in the same center. Therefore, the decision was made to learn as much as possible about a single classroom, and to allow that classroom to represent the entire program.

In a few instances, where there was a choice between a classroom that contained only four-year-olds and another with a mixture of three- and four-year-olds, we selected the latter, in order to be able to examine the effect, if any, of mixed-age grouping.

For each classroom selected, we interviewed and observed the lead teacher--119 in total. All assistant teachers or aides assigned to the classroom were interviewed but only one was observed. One hundred and thirty aides or assistant teachers were interviewed. In classrooms where there were two aides or assistants, one was randomly selected for observation. In a few cases, the aide selected was absent for the second day of observation. On those occasions a second aide was observed. A total of 123 assistant teachers or aides were observed.

A major portion of the study was the observation of children in classrooms. The goal of the observation was to characterize the experience of <u>all</u> children in the classroom, rather than to examine the experiences of individual children. For this reason, we did not select individual children for observation; rather, observers were instructed to use a classroom roster to select children for observation in a random order until all children had been observed at least once.

Data Collection Procedures

Data were collected during a six-week period in Spring and early Summer of 1991. Observers spent five days in each of the 119 classrooms, observing and coding classroom activities and groupings, and staff and children's behavior. Exhibit 4 shows the schedule for administering each of the observation measures in a typical week of data collection on a classroom. During the course of the week the observers also interviewed classroom staff.

Field Coordinators at each of the five sites monitored data collection activities and collected data to assess the reliability of the two time-sample observation measures by observing and coding simultaneously with each observer at least once during the data collection. They also interviewed program directors.

The initial training of the observers was reinforced by weekly review meetings with Field Coordinators, and by a retraining session conducted at each site by the two senior project staff

members responsible for the original training. These retraining sessions were conducted at the midpoint of the data collection period.

Analytic Approach

The first objective of the study was to provide a description of multiple aspects of the early childhood environments in the study program. The descriptive analyses examined a variety of teacher and child behaviors and classroom activities and groupings that were derived from the three micro-observation measures. While these three observation measures were themselves atheoretical, composite variables were constructed which reflect prevailing ideas about high-quality classroom processes. The descriptive analyses provide a profile of early childhood settings serving low-income four-year-olds.

The second major objective of the study was to examine issues of program quality. One set of analyses focused on the relationships between measures of quality--both global ratings and measures of classroom process from the micro-observations--and possible predictors of quality, including program, classroom, and staff characteristics. A second set of relational analyses compared the global and the micro-observation measures.

The design of the Observational Study permitted the examination of many possible relationships. Since the analysis did not start out with a set of clearly-stated hypotheses about such linkages, we recognized the likelihood that some significant relationships could be identified by chance. To address this substantial concern, a split-sample technique was used to select and evaluate the regression models. We divided the sample of 119 classrooms into two randomly-assigned groups. The models were determined by using the first half of the sample and were based on exploratory analyses of the relationships among a large set of predictor variables and measures of quality. The reliability of the models was then tested on the remaining half of the sample. Relationships confirmed in the second half of the sample were tested again on the full sample, to compute the most reliable point estimates.

Exhibit 4

Schedule for Administering Observation Measures in Each Classroom

Measure	Day 1	Day 2	Day 3	Day 4	Day 5
Global Ratings					
ECERS (Harms and Clifford)	----------	----------	----------	---->	completed based on 5 days of observation
Assessment Profile (Abbot-Shim and Sibley)	----------	----------	----------	---->	completed based on 5 days of observation
Description of Preschool Practices (Adapted by Abt Associates Inc. from Hyson, 1989))	----------	----------	----------	---->	completed based on 5 days of observation
Micro-Observations					
Adult-Focused Observation (Abt Associates Inc.)		2-3 hours of "core"[1] program time, 1-2 adults		2-3 hours of "core" program time, 1-2 adults	
Child-Focused Observation (Abt Associates Inc.)			2-3 hours of "core" program time, 7 minutes per child, all children in class in sequence		2-3 hours of "core" program time, 7 minutes per child, all children in class in sequence
Classroom Snapshot (Adapted by Abt Associates Inc.)	every 10 minutes, full program day	every 15 minutes as part of AFO observation	every 15 minutes as part of CFO observation	every 15 minutes as part of AFO observa-tion	every 15 minutes as part of CFO observation

[1]Excluding arrival, departure, lunch and nap.

CHAPTER THREE

CHARACTERISTICS OF PROGRAMS, CLASSROOMS, AND STAFF

In this chapter we describe the characteristics of the 119 programs that participated in the study, as well as the classrooms selected for observation and the teaching staff in them. The programs in the study do not represent early childhood programs nationally and are not necessarily representative of the subset of programs that serve disadvantaged four-year-olds. Therefore, the descriptive information in this chapter is not to be taken as an accurate representation of such programs as they exist nationally. Rather, it is intended to show how programs, classrooms and staff in the study were distributed in terms of the characteristics identified earlier as possible "predictors" of quality.

The major use of this information was in the analyses described later in the report that link potential "predictors" to different aspects and measures of quality. It is, therefore, a brief description; interested readers can find tables to support the information reported here in Appendix A.

Program Characteristics

In addition to the program characteristics cited in the literature and identified in the preceding chapter, there are other characteristics that are part of the basic program description, such as the age of the program, its hours of operation, the characteristics of children served, that might also influence aspects of the classroom experience. They are, therefore, included in this description of the programs.

The programs in the study were well-established; on average, they had been in operation for almost 17 years. More than 40 percent were half-day (three hours per day) programs; another third were full-day (seven to eight hours per day). The remainder offered an extended-day program (four to six hours per day). Over half of the Head Start and school-sponsored programs were half-day; only a handful operated for a full day. The child care centers on the other hand, were predominantly full day, with very small numbers of half- or extended-day

programs. More than two-thirds of programs offered no before- or after-school care for older siblings. Child care centers were more likely to accommodate the needs of school-age children; Head Start centers almost never offered care for older siblings.

More than two-thirds of the children in these programs were members of a minority group; 41 percent were Black, almost a quarter were Hispanic. School-sponsored programs had smaller proportions of minority children enrolled; the child care centers in the study had the smallest proportion of white, non-Hispanic children enrolled. Not unexpectedly, the child care centers served a wider age-range of children than did the Head Start or school-sponsored programs, since the latter are primarily intended for four-year-olds (in the case of Head Start, three-to-five year-olds). About half of all children had working mothers; in child care centers, more than two-thirds of the children had working mothers compared with 43 percent in school-sponsored programs and 39 percent in Head Start.

Program Goals

Although researchers have frequently asked program directors about their instructional philosophy and curriculum goals, for this study we elected to obtain this information directly from teachers, so that we might more accurately characterize the classroom. This information is discussed later in the chapter.

Directors were asked a straightforward question about the overall goals of the program. Directors of all three types of programs generally agreed on program goals; all shared the goals of providing a warm, loving environment and of promoting children's development.

Parent Involvement

While, in general, both directors and teachers reported parent involvement in a wide range of activities, there were significant differences among program types in the type and level of parent involvement. A larger proportion of Head Start classrooms had most of their parents involved in all types of activities, from volunteering in the classroom to recruiting new families for the program, and much smaller proportions of Head Start classrooms had activities in which

no parents were involved. This is not surprising, given Head Start's mandate to involve parents. Child care centers had the lowest levels of parent involvement, perhaps because most parents are working. Head Start parents were more likely to contribute to the program by sharing their skills or making materials than parents in other program types. The pattern of findings suggests that Head Start centers viewed parents in a different light, that is, as having skills and expertise to contribute to the preschool experience.

Supportive Services

Because children from low-income families are less likely to receive preventive medical and dental care and more likely to have developmental deficits, early childhood programs frequently provide or arrange for diagnostic and treatment services. Almost all programs provided hearing, speech and vision testing for children; about half provided or arranged for physical and dental examinations. The majority offered testing to diagnose psychological problems or developmental delays. Head Start programs consistently offered more services than either child care centers or school-sponsored programs. Less than one-third of child care centers and school-sponsored programs were able to provide physical examinations compared with 80 percent of Head Start programs. A similar pattern was found with respect to dental examinations.

Staff Turnover

Staff turnover in these programs was relatively low compared with rates reported in other studies such as the NCCSS (Whitebook et al., 1990). Across all programs, less than one-fifth of teachers and assistant teachers or aides had left the job in the preceding 12 months. Although the proportion of staff leaving was lowest in school-sponsored programs and highest in Head Start, the differences between types of programs was not significant. One possible explanation for the lower rate of turnover is that working conditions for staff in publicly-subsidized programs are somewhat better than in other programs. Fringe benefits are likely to be better and staff development activities are more common. Alternatively, low rate of turnover may reflect the economic conditions prevailing when the study was conducted; most of the study sites were

experiencing some degree of economic downturn that may have influenced teachers' decision to stay in their jobs.

Director Leadership Qualities

Staff were asked to rate the program director on a variety of leadership characteristics. In general, staff rated directors at a high level on the characteristics probed. Across all types of programs, the average rating given directors over all items was 4.0 out of a possible 5.0. A score of 4.0 or higher was given to directors on all but two of the individual characteristics: "Tolerates disagreements and criticism" and "Is an expert resource in child development".

There were relatively few differences across the three program types in how positively staff felt about the leadership qualities of their directors. In general, staff in school-based and Head Start programs rated the director's leadership qualities more highly than did staff in child care centers.

Summary

The differences noted among the program types on these characteristics are not unexpected. The child care centers offered longer hours of operation, a wider range of ages served, and before-and-after school care to meet the needs of working mothers in ways that the other program types did not. While all program types tried to involve parents in a variety of ways, the Head Start programs were more successful in involving more of the parents in a wider range of activities. Again, reflecting a broader focus, the Head Start programs offered more supportive services to children and families.

Classroom Characteristics

Our investigation of classroom characteristics focused heavily on the composition or structure of the classroom as opposed to its physical characteristics (space, materials, etc.) since these latter are more than adequately represented in the global assessment measures.

Classroom Composition

The average enrollment across all classrooms and program types was 20 children. In reality, because of absenteeism, on any given day the average group size was about 16 children. However, the average observed group size fluctuated quite widely across the day. Group sizes increased dramatically as classrooms were combined for lunch, outdoor play, special events, etc; they were lower at the beginning and end of the program day, as children arrived and departed.

On average, classrooms contained two staff members--typically a lead teacher, and an assistant teacher or aide. About 10 percent of classrooms had only one staff member assigned. In the majority of classrooms, children spent some time (21 percent, on average) supervised by only one adult. In about a quarter of the programs, children always had more than one staff person present. In another quarter of programs, children were supervised by one staff person less than 10 percent of the time. In about 6 percent of the classrooms, children were supervised by a single adult more than 25 percent of the time. There was a difference among the three types of programs in the amount of time classrooms were supervised by only one staff. This staffing pattern was observed less often in Head Start programs than in the other two types of programs; more than 40 percent of Head Start classrooms never had only a single staff member present.

The range of child-staff ratios observed in study classrooms was relatively narrow (6:1 to 12:1). Across all classrooms, child-staff ratio averaged 8.7:1 which satisfies the best state standards for four-year-olds as well as the Head Start requirement, and is within the range of optimal ratios recommended by the National Day Care Study. Most classrooms had an average child-staff ratio of 10:1 or lower over the week. Head Start classrooms, on average, had significantly lower observed ratios than school-sponsored or child care center classrooms.

Instructional Philosophy

We examined the instructional philosophy operating in the classroom in two ways. We first asked each teacher a general question about the focus of the curriculum used in the

classroom. Nearly two-thirds of the teachers described a broad, developmental curriculum that included intellectual and social development. Twenty percent saw their focus as the child's social development only; the remaining 12 percent focused on the child's intellectual development. Teachers in the three program types did not differ significantly in their curriculum focus.

Secondly, we asked a series of 20 questions that mirrored the items in the Description of Preschool Practices, one of the global observation measures used in the classroom. The questionnaire, like the observation measure, listed developmentally appropriate and inappropriate practices. Teachers were asked to rate themselves on each item from 1 "Doesn't match my philosophy at all" to 5 "Matches my philosophy very well." On developmentally appropriate behaviors, teachers in general felt that their philosophy matched the descriptions very well (mean of 4.5 out of 5). This held true for teachers in all three program types. On developmentally-inappropriate behaviors, teachers rated their philosophies as not matching (mean of 2.4 out of 5). Teachers in Head Start and school-sponsored programs expressed more disagreement with inappropriate practice statements than teachers in child care centers.

We compared teachers' agreement with developmentally appropriate practice with how their classrooms were rated by an independent observer. Teachers tended to rate themselves as being in greater agreement with developmentally appropriate practice (mean = 4.5, s.d. = 4.0) than the independent ratings showed (mean = 3.5, s.d. = .88). The difference between the two sets of scores was significant, and their correlation was very low (n=.04). For the developmentally inappropriate practices, the self-ratings and observation scores were more similar (mean of 2.4 for self-ratings and 2.2 for observation). Although the two scores were highly correlated (n=.61), the difference was still significant, with teachers rating themselves more in agreement with inappropriate practices than the ratings showed.

Adults in the Early Childhood Classroom

Our discussion now shifts to the teachers and aides in the classrooms containing four-year-olds that are the focus of the study. All the information presented was gathered through interviews with classroom staff.

The typical lead teacher in these early childhood classrooms had completed high school and had some post-secondary education. In addition to the 55 percent of lead teachers with college degrees or higher, 11 percent had received ar. Associate of Arts degree, and 13 percent, mostly Head Start teachers, had received a CDA credential. All of the teachers in school-based programs had a B.A. or higher degree. While formal degrees were less common in both child care centers and Head Start programs, almost half the teachers in the Head Start classrooms had earned a CDA or Associate of Arts (AA) degree. While Head Start requires professional qualifications, the CDA offers an alternative to formal college preparation. Assistant teachers or aides had less formal schooling, but only a small fraction had not completed high school. More than half had some postsecondary education; 11 percent had completed a BA or higher degree. Ten percent had received an AA degree.

Almost all of the classroom staff had received some kind of specialized training in early childhood and child development. In-service training was common; a majority of teachers and aides or assistant teachers had received training in the past year. Nearly 80 percent of teachers and more than a third of all aides had a degree or a diploma with a child-related specification. The level of professional certification was rather high. Half of the teachers and 12 percent of aides had an early childhood education certificate. Almost a third of the teachers and 18 percent of aides had received a CDA.

Almost all Head Start aides had had early childhood training and over half had received a degree or certification in a child-related field. Head Start programs had significantly higher proportions of aides with early childhood training than did either school-based or child care programs. Almost two-thirds of Head Start teachers and more than a third of Head Start aides had received a CDA compared with small fractions of staff in other programs. Three quarters of the teachers in school-based programs had a state Early Childhood Education (ECE) Certificate compared with just over a third in Head Start and child care programs.

A significantly greater proportion of aides in Head Start and child care programs had received some early childhood training in the last year, compared with staff in school-sponsored programs.

Overall, teachers had an average of more than 11 years of teaching experience and aides on average of nearly 8 years (including their current position). Most of this teaching experience was in early childhood settings. There were no significant differences among the three types of programs in overall amount of experience. However, significantly more staff in school-based programs--both lead teachers and aides--had previous experience as grade school teachers. Across all programs, lead teachers had been teaching in their current job for an average of five years. Aides had somewhat less longevity in their current job.

Summary

In a number of ways, classrooms and staff look similar across all three program types -- in the instructional philosophy of the classroooms, in several aspects of the classroom composition and in teachers' and aides' prior teaching experience. There are a few interesting differences: Head Start classrooms had significantly lower child-staff ratios than other classrooms and were less likely to have children supervised by a single adult for any substantial period of time; teachers in school-sponsored programs had higher educational credentials than teachers in other programs. In Head Start classrooms, a partial counterbalance was that almost all aides had early childhood training and more than half had received a degree or certification in a relevant field of study. Thus a typical classroom in a school-sponsored program was likely to have a more highly-educated teacher, assisted by a relatively untrained aide. The Head Start classrooms were likely to have a trained teacher (albeit with fewer formal educational credentials) assisted by a trained aide.

CHAPTER FOUR

THE CLASSROOM DAY: ACTIVITIES, GROUPINGS, AND SUPERVISION

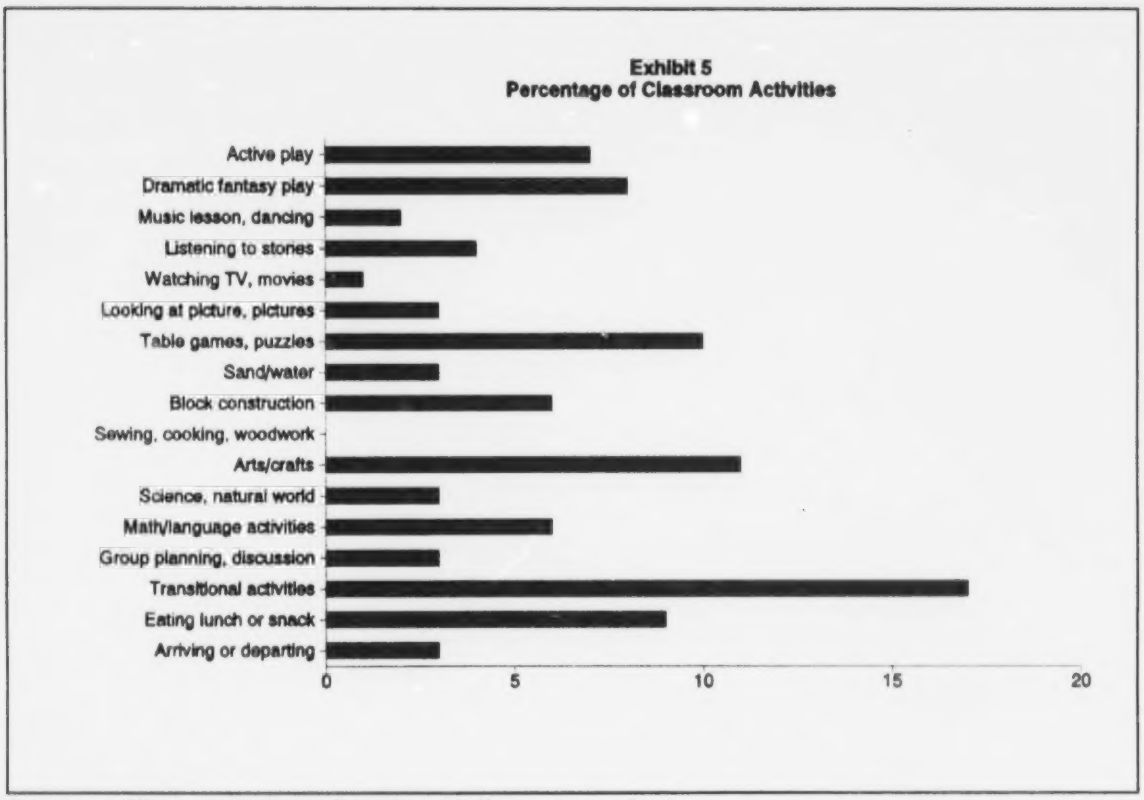
This chapter and the one that follows address the first of the study's objectives: to describe the experience of disadvantaged four-year-olds in early childhood classrooms. In this chapter, the focus is on how the classrooms looked across the program day, in terms of the activities in which children were engaged, the ways in which they were grouped, and the presence of adults in the group. Most of the information on which this discussion is based was derived from the Classroom Snapshot. Appendix B contains a description of how the measure was used and analyzed.

Children's Activities in the Classroom

The typical early childhood classroom packed a wide variety of activities into a program day, most of them taking up only a small percentage of the available time. The exception was a group of activities that include: arrival and departure; toileting; setting up and cleaning up; waiting; and moving from one activity to another. Together, these typically absorbed about 20 percent of children's time. Approximately 10 percent of the time was taken up eating lunch or a snack. The percentage of time needed for these activities was relatively stable, regardless of the length of the program day (Exhibit 5).

Activities that fostered expressive skills, such as arts or crafts projects, or dramatic and fantasy play, occupied the next largest block of time (about 19 percent). While most classrooms have a limited number of materials to encourage dramatic play--usually a housekeeping area and a small number of hats and props for dressing up - some teachers manage to encourage children's talent for fantasy so that it enriches even routine activities. Exhibit 6 describes one such classroom.

Children spent almost 10 percent of their time playing table games or fitting puzzles together and another 7 percent building with blocks. Children spent only about 6 percent of their time in any kind of math or language activity and 3 percent in activities related to science and the natural world. (In the preschool classroom, these activities are defined very broadly indeed. A counting song, for example, can be seen as a math, language, and arts activity.



Source: Classroom Snapshot (one full program day)
(n = 119 programs)

Discussing a weather chart, planting seeds, feeding fish in a tank would count as "science or natural world" activities. Exhibit 7 describes a rather common "natural world" activity.) Almost no time was spent in watching TV or movies.

The picture that emerges from looking at average or "typical" percentages of classroom activities masks the reality that there were substantial numbers of classrooms in which a specific activity did not occur at all during the day of observation (Exhibit 8). Many of these activities are ones that we would expect to be included in the daily curriculum of an early childhood classroom. For example, in more than half of the classrooms, no children were engaged in science or natural world activities of in sand or water play. In about one-third of classrooms, children were not observed building with blocks or looking at books. In a quarter of the classrooms, there were no math or language activities; in 28 percent of the classrooms there was no story-time either for the class as a whole or for smaller groups of children.

Exhibit 6
Dramatic Play

In one classroom we observed, the children went to their work areas using a different means of transportation every day — a cruise ship, a plane, a train, a bus. One day they travelled by cruise ship, discussing first the types of jobs on board, the kind of clothes to wear, who steers the ship, who is in the engine room. Next day, they traveled by train. Everyone wearing red went to the back to be the little red caboose. The children held on to each other and made appropriate sounds while the conductor punched the tickets that they had decided should cost $50.

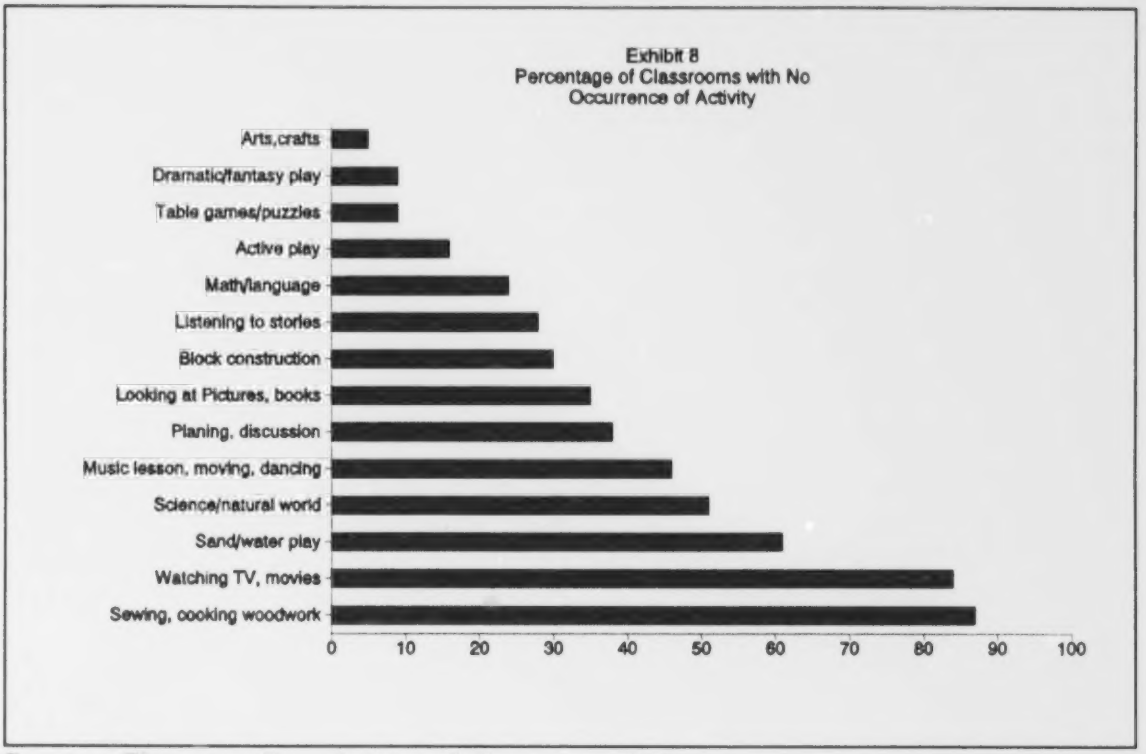
The housekeeping area in this classroom changed its identity several times in the course of a week. One day it was a hospital Trauma Center. The children set up beds and medical supplies and wore doctor and nurse uniforms. When one child shouted "Code Blue, Code Blue," children playing in the block area ran over to act as the ambulance and carry the "patient" to the hospital. They talked about how to move the patient, what bandages to put on, what medication should be given. They even asked if the patient had a Medicare card!

The teacher in this classroom allowed the children to make the initial choices and helped them to elaborate and extend the fantasy by asking questions and encouraging the use of new words and ideas. She often used the activity as a time to observe the children and listen for issues that might need to be explored in later conversations with the group or with individual children.

Exhibit 7
Natural World Activity

The teacher gathered with a small group of children, giving each one a styrofoam cup with soil in it, and two or three bean seeds. She explained, "If we plant these today, they will be full grown in a few weeks. Remember, they will need water and sunlight to grow." She went from one child to another, encouraging them to make a hole in the soil and put the seeds in. "Gabriela, that's a perfect hole. You can go ahead and put the seeds in." "Marcus, how are you going to mark your cup, so that you can remember which it is?" Then she said to the whole group, "OK, let's put our seed cups on the window sill, so the seeds get lots of something. What do they need to get?" The children exclaimed, "Sunshine!" and scrambled to put their cups close to the window. The teacher put up a poster next to the window that showed what the sprouted seed will look like and how the plant will eventually look.

Looking across several days of observation modified this picture somewhat. In the course of a week, each of these activities occurred in most classrooms at least once.



Source: Classroom Snapshot (one full program day)
(n = 119 classrooms)

Another way of looking at classroom activities is to group similar activities. Psychologist Jerome Bruner, combining Piagetian and Vygotskian theories, suggests grouping activities in terms of their ability to produce rich play (i.e. play that promotes learning) and engage children fully:

> The richest activities in terms of complete activity evoked almost invariably have two characteristics. In the first place, they have a clear *goal* and some *means* (not always obvious) available for its attainment. And secondly, they almost always have what for lack of a better name can be called 'real-world feedback' - the child most often knows how he is doing, whether it is building, drawing, or doing puzzles without advice from another. He may seek praise or approval. But he knows his progress on his own.

> These are the 'high yield' activities. Somewhat behind them are play involving pretending, play with small-scale toys, and manipulating sand or dough. And well behind these come informal and impromptu games, gross motor play, and unstructured social playing about and 'horsing around'. These rarely lead to high-level elaboration of play. Much of the latter unelaborated play appears to be serving the function of release of tension - in physical activity or in sheer social contact and 'chatting'. (Bruner, 1980, p.60)

Using his suggested scheme for grouping activities, we constructed six "composites". While all of the first three composites may involve activities with goals, the activities included in the first category have more structured, externally defined and observable goals. The six composites are:

- **Goal-directed activities**. These include math activities, language arts, science and natural world activities, sewing, cooking, woodwork, table games and puzzles, looking at books or pictures.
- **Art and music**.
- **Exploration activities**. These include sand or water play, dramatic and fantasy play.
- **Group activities**. These include planning, discussion, lunch or snack, watching TV or movies.
- **Informal activities**. These include active play (gross motor play indoors and outdoors), and social interaction (casual conversation).
- **Routines**. These include arriving or departing, and transitional activities.

Children spent almost one-third of their time or 20 minutes of every hour, in goal-directed activities. If we include art, music[1] and exploratory play, then children spent more than half of their time in activities likely to produce some of the elaborated and concentrated play that Bruner sees as "rich play" (Exhibit 9).

Children's Groups

A frequent concern about preschool classrooms is that, as the reality of school approaches, they will begin to look more like a school classroom, with children spending much

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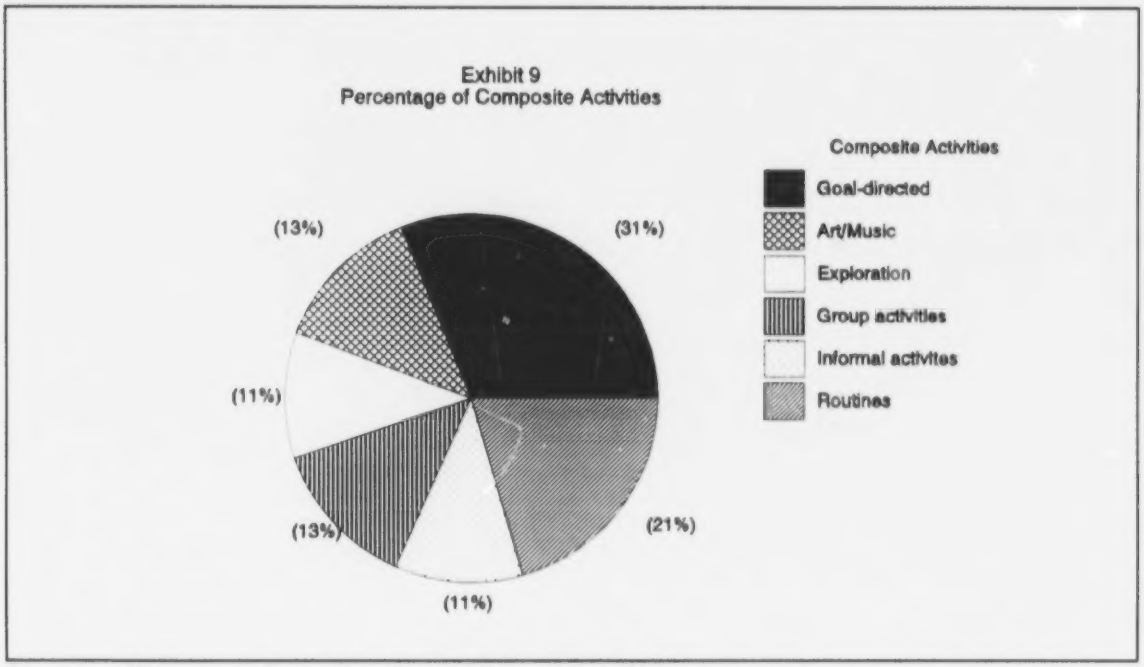
[1]Later in the discussion, Bruner places aesthetic activities such as art and music between "goal-oriented" and exploration or fantasy play.

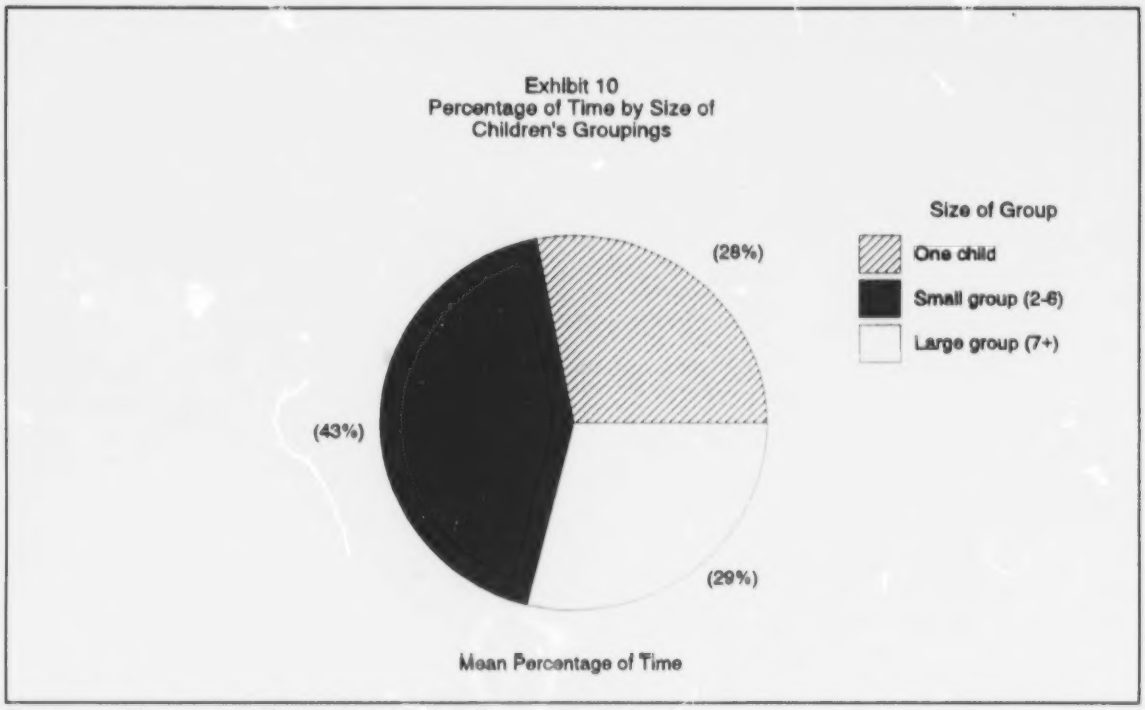


Source: Classroom Snapshot (one full program day)
(n = 119 classrooms)

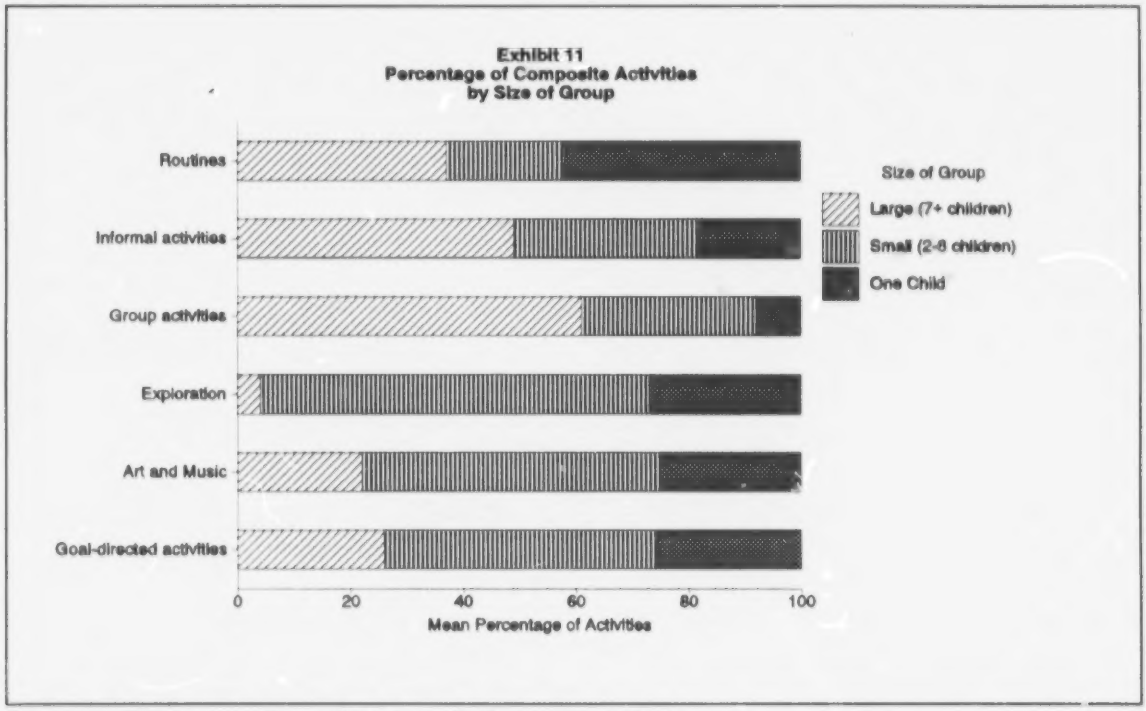
of their time in a single large group. Our observations did not support this hypothesis; across all classrooms and types of programs, 43 percent of the groups observed were small, ranging from two to six children. About 30 percent were large groups of seven or more children and almost the same proportion consisted of an individual child, working alone (Exhibit 10).

The size of the group was influenced by the kind of activity that was occurring. Children engaged in dramatic or fantasy play or other exploratory play were almost never in large groups. Two-thirds of the time, this activity took place in the context of a small group; over a quarter of the time a child was playing alone. Similarly, goal-directed activities and art or music were most likely to involve small groups or children working alone. Eating lunch or snack, planning or discussion, and active play were much more likely to occur in large groups (Exhibit 11).

This is not to suggest that interesting activities do not occur in large groups. Group time, in which all the children in the class participate in a common activity, led by the teacher, can encompass a wide range of activities. Exhibit 12 provides three views of group time.



Source: Classroom Snapshot (one full program day)
(n = 119 classrooms)



Source: Classroom Snapshot (one full program day)
(n = 119 classrooms)

Exhibit 12
Three Views of Group Time

Classroom A

Fourteen children sit in a circle on the floor. The teacher sits as part of the circle, but on a chair, with a very large canvas bag at her side. She is reading a story about firefighters, using a book with brightly-colored illustrations that she turns towards the children. Then she asks "Who wants to be dressed up today? Laraine, how about you?" Laraine, who has been quiet during storytelling, neither asking nor responding to questions, looks pleased and agrees. The teacher asks the children, holding the book open for them to see, "What's the first thing a firefighter needs?" Marco says quickly "A hat". "OK, can you find one in the bag?" Marco fishes in the bag, pulls out a bright red plastic firefighter hat and puts it on Laraine. "What else does a firefighter need?" "A coat" says Sonia, and pulls out of the bag a large yellow rubber raincoat. She and Marco help Laraine to put it on, while the other children call out "Boots, gloves, a firehose." Sonia and Marco extract from the bag an enormous pair of men's boots which swallow up most of Laraine's legs, a pair of yellow rubber gloves, and a length of rigid hose from a wet/dry vacuum cleaner. The children are delighted, but the teacher asks "What else does a firefighter need? What else does he carry when he goes to a fire?" Looking more closely at the book, Marco says "He has something on his back," "Yes, he has an oxygen tank. Sonia, is there anything in the bag that we can use for an oxygen tank?" Sonia pulls out a large plastic soda bottle and masking tape; together she and Marco, helped by the teacher, tape the bottle to Laraine's back.

The children are very excited by the transformation of Laraine and pull her over to a full-length mirror at the end of the classroom, so that she can see the transformation. She raises the length of hose, directs it toward an imaginary fire and smiles at her reflection in the mirror.

Classroom B

Mrs. Porter uses a sock hand-puppet named Sparkles to help her during circle time. The six rules for circle time are: remain seated; say only builder-uppers; take turns; plan your comment; listen to others' comments - don't interrupt; it's OK to pass (i.e. choose not to comment).

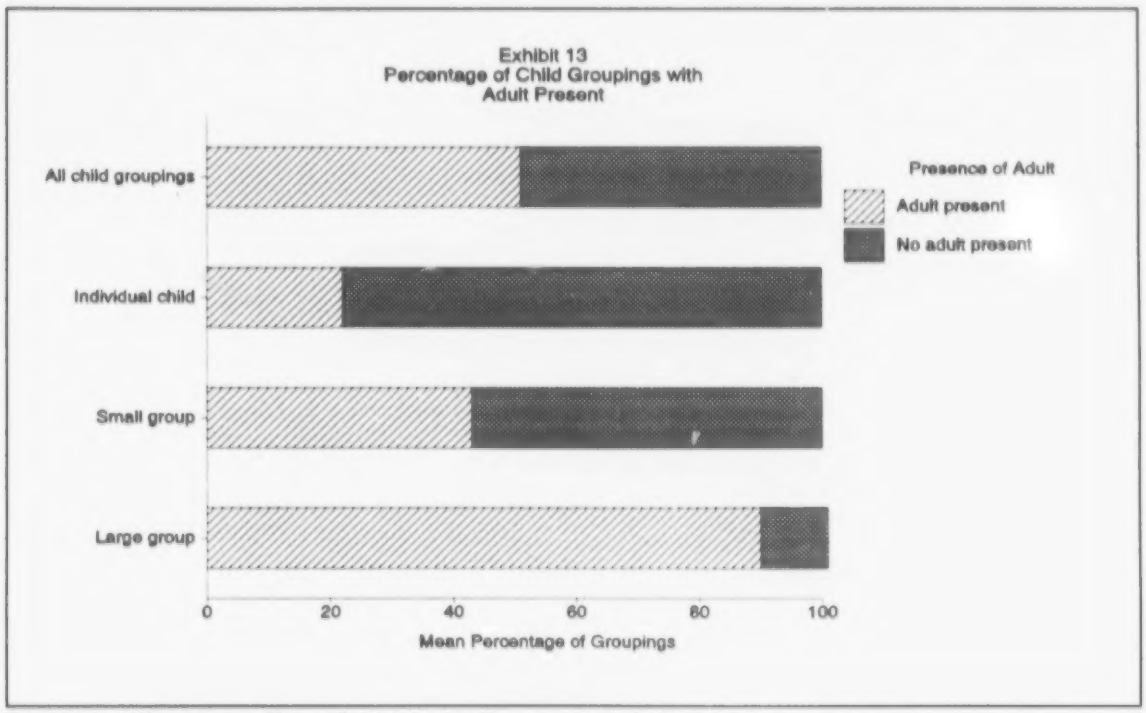
The children like Sparkles and talk directly to him, not to Mrs. Porter. He tells them frequently how wonderful they are and that they can become anything they want to be. This morning, they talk about what they want to be when they grow up. Shauna says she wants to be a garbage person; Mrs. Porter is very excited and says that she knows her world will be kept clean because there will be a responsible person taking care of the garbage. Juan says he wants to drive a truck; he makes beeping noises to indicate that he is backing up. Sparkles uses this to get the children to talk about safety. Everyone has something to say on the subject. Sparkles has a friend, a blue rabbit sock-puppet named Funshine, who talks more about feelings. Today is Sparkles' last day for the year; he presents each child with a certificate and tells them that he isn't really saying goodbye; if they ever feel sad they can look at the Sparkles certificate and know they will be all right. The children take turns to hug him and tell him about a younger brother (or sister) whom he'll meet next year. One little boy is whistling as he waits for his turn to talk to Sparkles. Mrs. Porter asks who is whistling, tells him he is really good at it and asks him to teach the class to whistle.

Classroom C

Eighteen children sit quietly in a circle on the floor; the teacher and an aide stand above them. The teacher calls out each child's name and says "Hi", when the child answers. Then she announces that someone special is coming to show them a new dance. Almost immediately, a young woman dressed as a chicken enters and greets the children. She explains that she is going to show them the Chicken Dance and then they can do it too. She puts a record on an ancient record player and, to its scratchy accompaniment, demonstrates the steps, one by one. After demonstrating each step she has the children copy the step. All goes well until it is time to put all the steps together. Three of the girls are very adept and repeat the sequence of steps exactly; the rest of the children forget one or more steps in the sequence and become confused. The Chicken Lady goes through the sequence twice more, by which time most of the children have caught on. The teacher and aide both join in and, like the children, seem to be having a good time. After twenty minutes, the Chicken Lady leaves and the children collapse back onto the floor, and wait for the teacher's instructions.

Adult Presence in Children's Groups

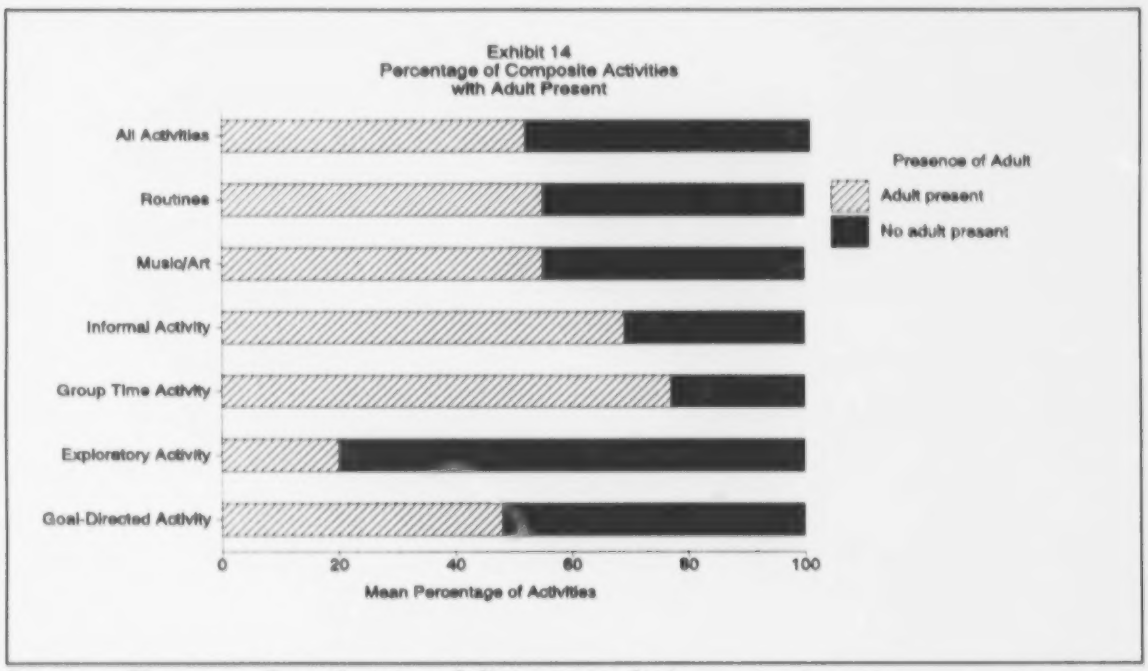
While there is usually at least one adult present in the classroom throughout the program day, we were interested in looking at the extent to which adults directly supervised children's activities in different groupings. At this level of description, we were not concerned with whether the adult was interacting with the children, but rather whether, from the child's perspective, she was part of the group. The description below, therefore, includes times when the adult is directing the activity or participating in it and times when the adult is simply present in the group without interaction. On average, children spent about half their time in activities with an adult present **in the group** and the other half being alone or with other children (Exhibit 13). Children were most likely to be with a teacher or aide when they were in a large group. Almost 90 percent of large groups included an adult, compared with 43 percent of small groups. Most of the time, individual children working by themselves were not directly supervised by an adult.



Source: Classroom Snapshot (one full program day)
(n = 119 classrooms)

The Child-Focused Observation provides information on what children were doing when they were on their own. About half of the time they were engaged in goal-directed or exploration activities (blocks, dramatic play, manipulatives, reading). The other half of the time the children were wandering, watching other children or in transition from one activity to another.

Adults were more likely to be present in some activity contexts (Exhibit 14). Three-quarters of all group time activities included an adult; and an adult was present in over two-



Source: Classroom Snapshot (one full program day)
(n = 119 classrooms)

thirds of informal activities, which included active play and social interaction. Exploration activities, on the other hand, usually occurred without an adult present.

Measures of Quality: Classroom Activities and Groupings

From the fine-grained descriptions of activities and groupings, we extracted three types of summary measures that seemed to reflect important aspects of a high-quality classroom:

distribution of activities, pattern of child groupings, and activity mix. The first set of summary measures describes the content of activities in a classroom. While all classrooms have a range of activities that include routines, informal and group activities, we would expect children in high-quality classrooms to spend a substantial amount of time in goal-directed, art and music and exploration activities. As Exhibit 15 shows, typically about a third of classroom time was spent in goal-directed activities, about 10 percent in exploratory activities and 13 percent in art or music activities. However, as Exhibit 16 shows, there was substantial variation across classrooms in the percentage of time spent in these types of activities (versus routines, transition and group time). In a sizeable percentage of classrooms little time (10% or less) was devoted to music or art and exploratory activities, and in about a third of the classrooms, less than a quarter of the time was spent in goal-directed activities.

The second measure describes the pattern of child groupings in the classroom. Classrooms were characterized in terms of the percentage of time in which the children were organized in small groupings (children in small groups or working individually) as opposed to whole group (all children in a single large group). In a developmentally-appropriate classroom, we would expect higher percentages of time in which children were in small groupings (Bredekamp, 1987). Exhibit 15 shows that programs varied in their pattern of child groupings. About half of the time, on average, classrooms were organized in small groupings (individuals playing alone or groups of up to six children). About 40 percent of the time, children were in one large group. Exhibit 16 indicates that there was substantial variation across classrooms in the pattern of child groupings. In a few classrooms, the majority of children's time was spent in small groupings, while in 15 percent of the classrooms children spent less than a quarter of their time in small groupings.

The third measure was the activity mix in the classroom. In a high-quality classroom, we would expect to see children spending more time in a variety of small group or individual activities and less time in a single large group, all doing the same thing. (Bredekamp, 1987). Just over half the time the whole class was engaged in a single activity; children were engaged in three or more activities just over one-third of the time (Exhibit 15). Later analyses examined

the potential predictive relationship among these measures and a variety of program characteristics. The results of these analyses are presented in Chapter Six.

Exhibit 15

Percentage of Time in Classroom Activities and Groupings Defined as Quality Measures (n = 119 classrooms)

Quality Measures	Percentage of Time	
	$\bar{x}$	(s.d.)
Content of Activity		
Goal-directed activity	31%	(12)
Exploratory activity	11	(7)
Art or music activity	13	(6)
Pattern of Child Groupings		
All children are in small group or individual activities	47	(20)
All children are in one group	40	(17)
Activity Mix		
Single activity for whole class	50	(17)
Three or more activities in class	36	(17)

Source: Classroom Snapshot (one full program day)

Exhibit 16

Percentage of Classrooms by Amount of Time in Classroom Activities and Groupings Defined as Quality Measures (n = 119 classrooms)

Quality Measures	Percentage of Time				
	0-10% of Classroom Time	11-25% of Classroom Time	26-50% of Classroom Time	51-75% of Classroom Time	76-100% of Classroom Time
Content of Activities					
Goal-directed activities	2%	29%	62%	7%	0%
Exploratory activities	53	44	3	0	0
Art or music activities	33	64	3	0	0
Pattern of Child Groupings					
All children are in small group or individual activities	6	10	41	36	7
All children are in one group	3	17	60	8	2
Activity Mix					
Single activity for whole class	1	7	39	47	7
Three or more activities in class	8	19	53	19	1

Source: Classroom Snapshot (one full program day)

CHAPTER FIVE

INTERACTIONS IN THE CLASSROOM

The preceding chapter broadly characterized children's experiences across the program day. In this chapter, we focus more precisely on teachers' and children's behavior and interactions during a specific portion of the day, i.e., the two hours or so in the morning that constitute the "core" program in most, if not all, programs. This period begins after all children have arrived and after breakfast, if it is served. It may include group or circle time and free play as well as more organized group activities. It ends when or just before lunch is served. This period offered the best opportunity to capture what seemed to us most interesting about the classroom environment--the amount and type of interactions between children and adults and among children and the content of the interactions.[1]

Information on teacher and child behavior was derived from two different kinds of observations. First, to examine teachers' behavior in detail, observers spent two to three hours on each of two days, directly observing the teacher (and an aide, if one was present) in each classroom. Observers coded continuously for a single adult for up to two hours on each day. Where there were two teachers (or a teacher and an assistant) in the classroom, observers were instructed to observe both individuals on each of the two days, whenever possible. (Because of teachers' and aides' absences, this was not always possible.) The findings reported here are based on more than 700 hours of observations of classroom staff.

To examine children's behavior and interactions, observers shifted the focus of their attention to individual children in the classroom, coding the Child-Focused Observation for two to three hours on each of two days. Observers followed individual children, selecting them at random until all had been observed. The sum of the two days of observations represents the experiences and behavior of the children in a class as a group.

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[1]Because we selected this period of time so as to observe as much interaction as possible, it is not representative of the whole day. Teacher interactions with children, for example, might be more or less frequent during meal time or towards the end of the day.

Interactions Between Adults and Children

We first asked "What proportion of time are classroom staff actively involved with children?" Here we are moving beyond the question asked in the prior chapter, about adult presence in the group. In that chapter we made no distinction between situations in which the teacher was standing or sitting as a member of a group without interacting with any of the children in the group, and situations in which the teacher was actively involved with one or more members of the group. Now we differentiate interactions (which might be nonverbal, e.g., touching, restraining, comforting) from observing or monitoring behavior.

During periods of core programmatic activity, classroom staff were actively involved with children nearly 70 percent of the time. This time with children was broken into four categories. In the first category are interactions with children that are intended to teach them something or to manage their behavior.[2] In the second category are interactions in which the teacher is playing with the children (i.e. is a participant, rather than the leader). In the third category are interactions (which may be nonverbal) in which the teacher is helping or comforting a child; a final category of interactions includes casual conversation between teacher and child (e.g. "How are you doing today?" or "I like your new haircut.")

Staff spent, on average, 44 percent of the time in teaching and management interactions with children: 26 percent of the time was teaching and 18 percent was management of children's behavior. A total of 17 percent of the time was spent in casual conversation with children, helping or comforting children, and participating with children in their play or games. Administrative and transition activities took up about 20 percent of staff time. Staff were out of the room or uninvolved in any activity less than 10 percent of the time (Exhibit 17).

Lead teachers spent a significantly greater percentage of time interacting with children than did assistant teachers or aides: 69 percent vs. 54 percent. Conversely, assistant

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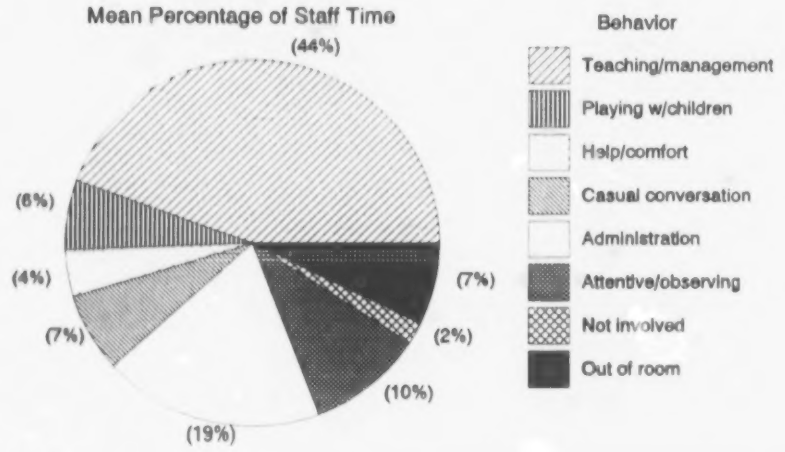
[2]In the early childhood classroom these two are not always easy to disentangle. In later analyses, we differentiated the two on the basis of the content of what the teacher is presenting to the child. Cognitive concepts, games with rules, information or questions intended to promote expressive, artistic developmental or self-help skills were labeled as "Teaching", while social rules and classroom organization were labeled "Management."

Exhibit 17
Teachers' Use of Time
All Classroom Staff

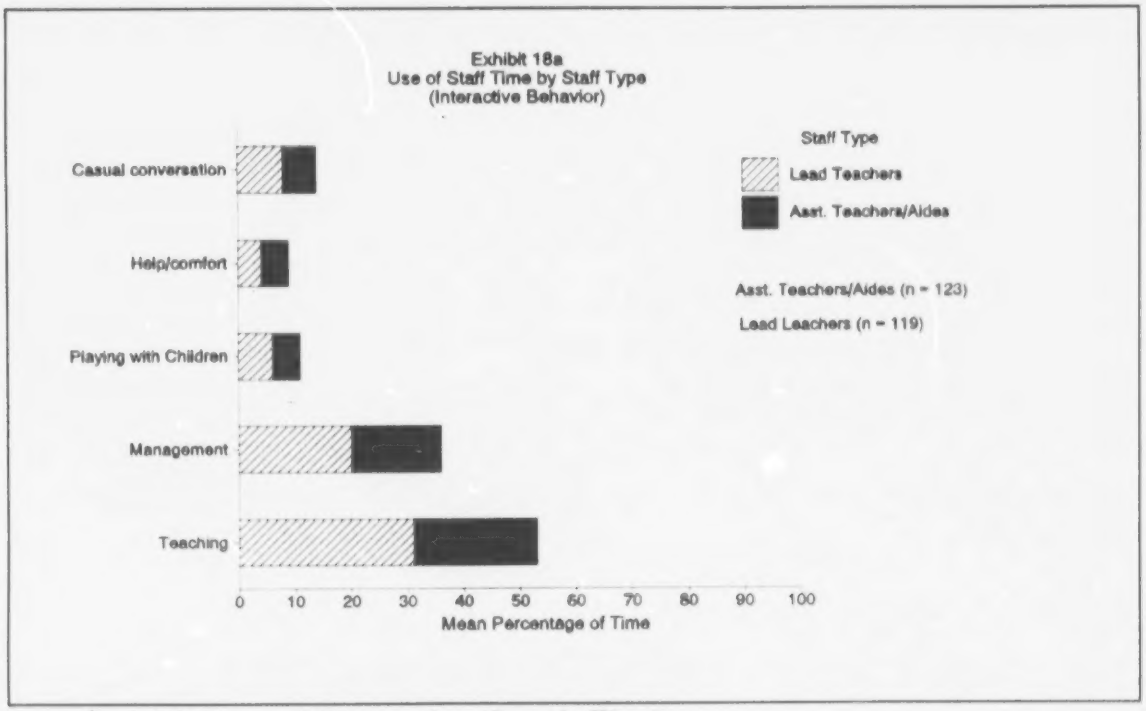


Source: Adult-Focused Observation (Time Sample)
(n = 242)

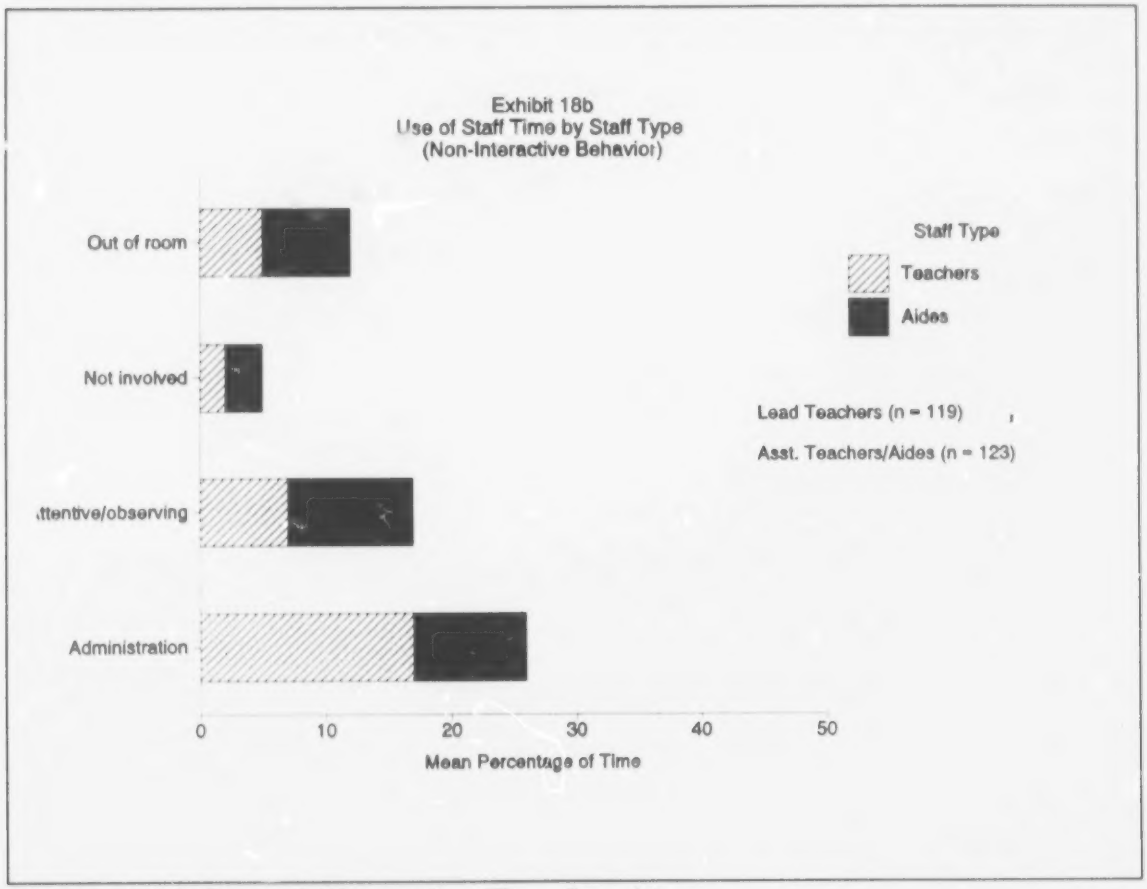
teachers/aides spent a greater percentage of their time in noninteractive administrative tasks and in watching children's activities. Lead teachers and aides also differed in what they did during interactions with children; lead teachers spent more time in teaching and in managing children's behavior, while aides did more helping and comforting (Exhibits 18a and 18b).

It was relatively rare for staff to spend time with individual children. About 10 percent of staff time was spent with an individual child; most commonly, staff interacted with the class as a whole or with a large group of children (Exhibit 19). Lead teachers spent more than twice as much time working with the whole class as did aides (Exhibit 20). Both spent about the same percentage of their time with individual children and with groups of different sizes.

Knowing that, on average, teachers spent about 10 percent of their time with individual children does not tell us whether the teacher's attention was distributed equally across all children in the class. The same average could reflect classrooms where all children received

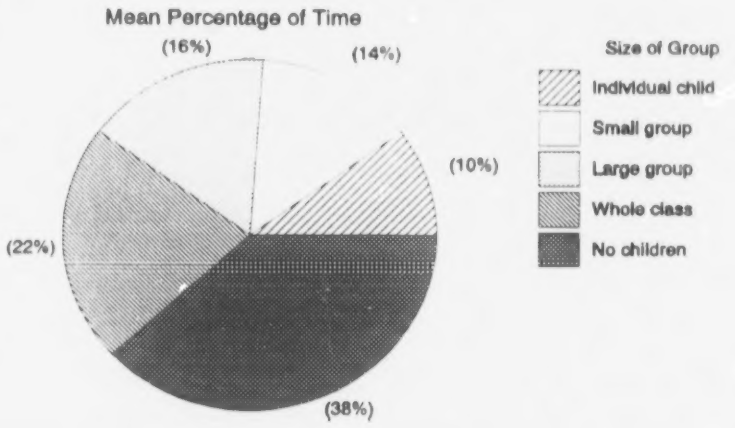


Source: Adult-Focused Observation (Sample Time)



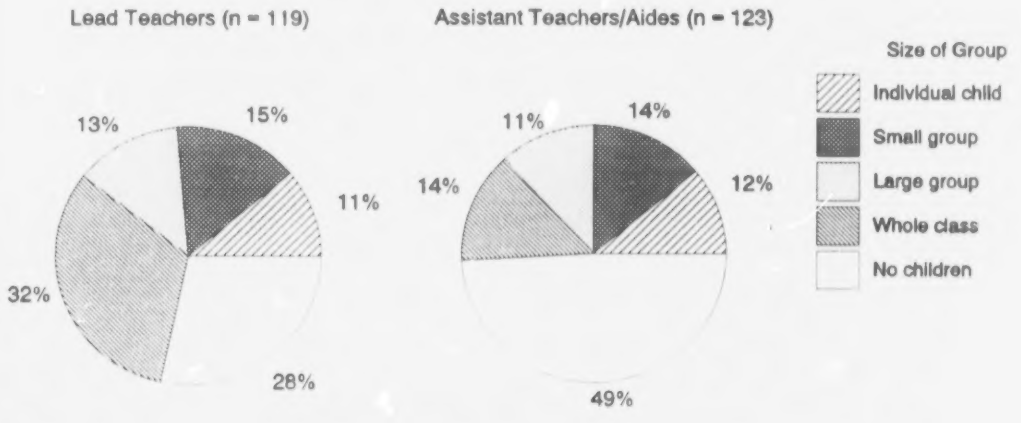
Source: Adult-Focused Observation (Time Sample)

Exhibit 19
Percentage of Staff Time Spent
with Different Groupings of Children:
All Classroom Staff



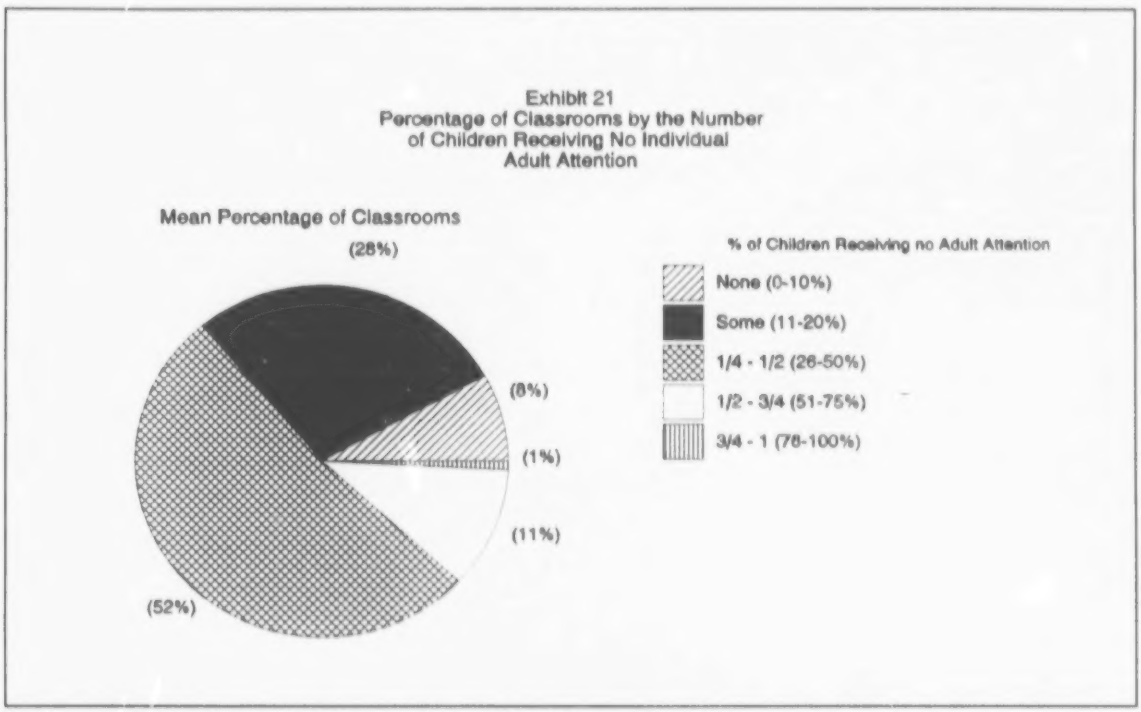
Source: Adult-Focused Observation (Time Sample)

Exhibit 20
Percentage of Time Spent with Different
Groupings of Children by Staff Type



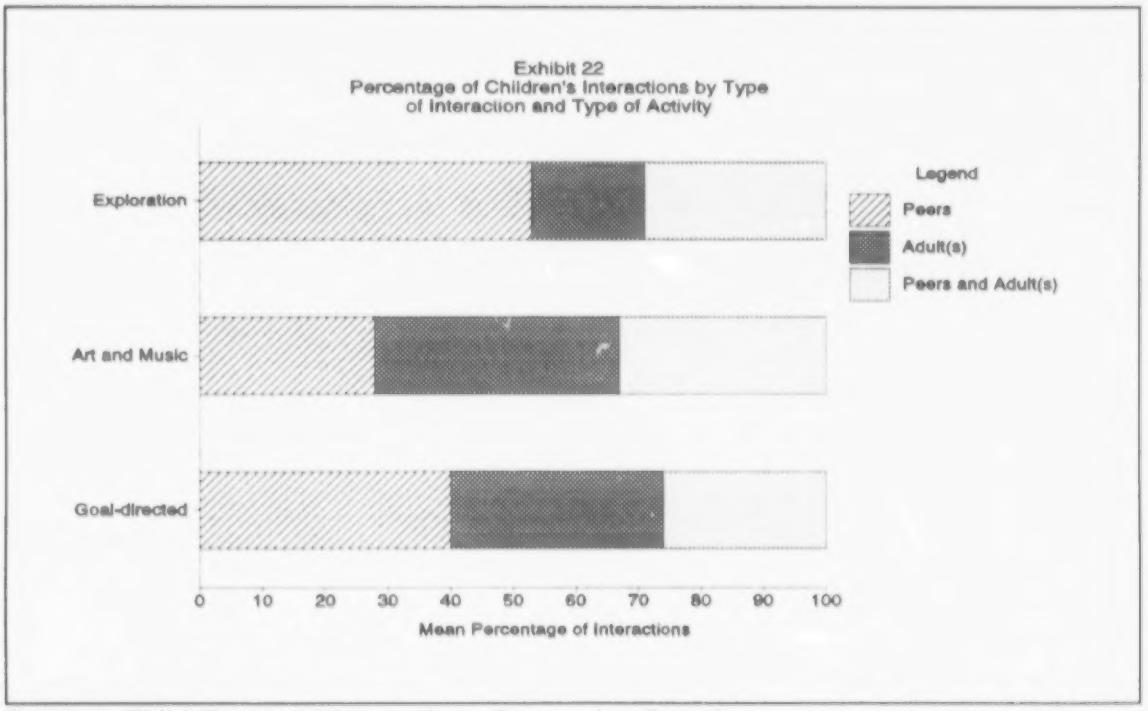
Source: Adult-Focused Observation: (Time Sample)

about the same amount of one-on-one time with an adult, and classrooms where one or a few children receive a disproportionate amount of attention. Therefore, for each classroom, we computed the percentage of children who received no individual attention from an adult during the observations. Across all classrooms, on average, 31 percent of the children had no one-on-one interaction with an adult during the observation period. The standard deviation was large (15%), indicating that classrooms varied markedly on this measure. At the top of the range were the classrooms (eight percent of the total sample) in which only a small percent of the children failed to interact with an adult during the observation periods; at the other end of the range were the 12 percent of all classrooms in which more than half of the children received no individual attention (Exhibit 21).



Source: Child-Focused Observation: Time Sample
(n = 119 classrooms)

Interactions between the child and an adult occurred more often in some contexts than in others (Exhibit 22). Children were more likely to interact with an adult in the context of "goal-oriented" activities or art and music activities than when they were engaged in exploratory play. In exploratory play, more than half of their interactions were with peers.

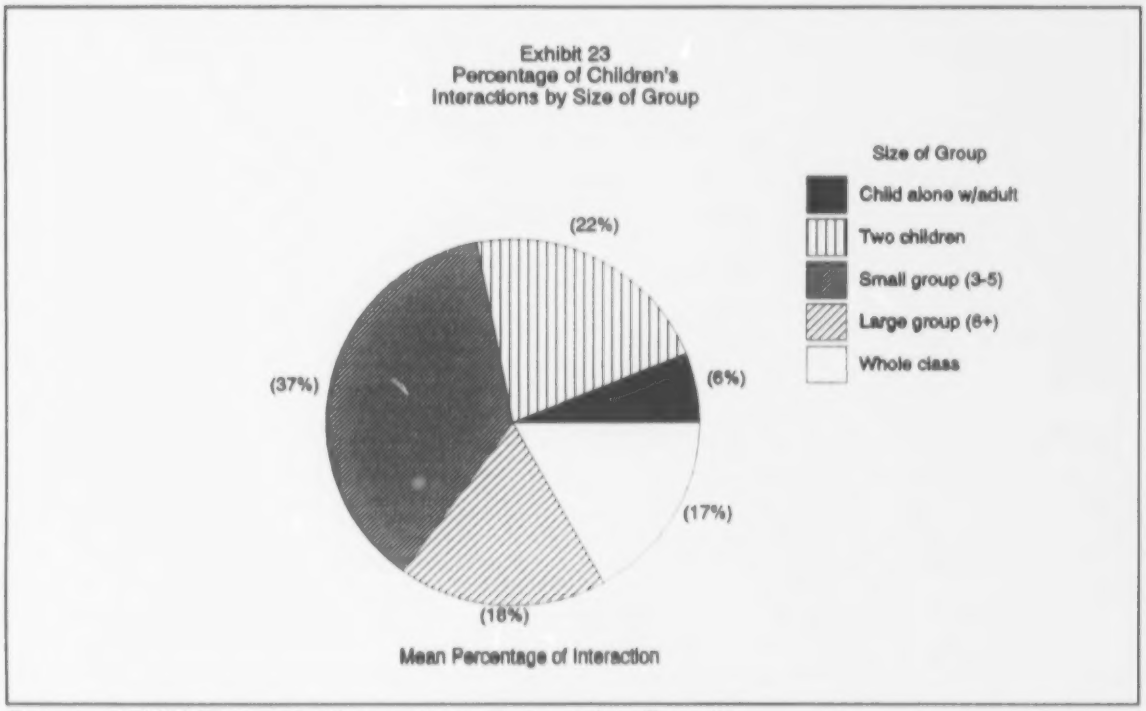


Source: Child Focused Observation: Interaction Sample
(n = 119 classrooms)

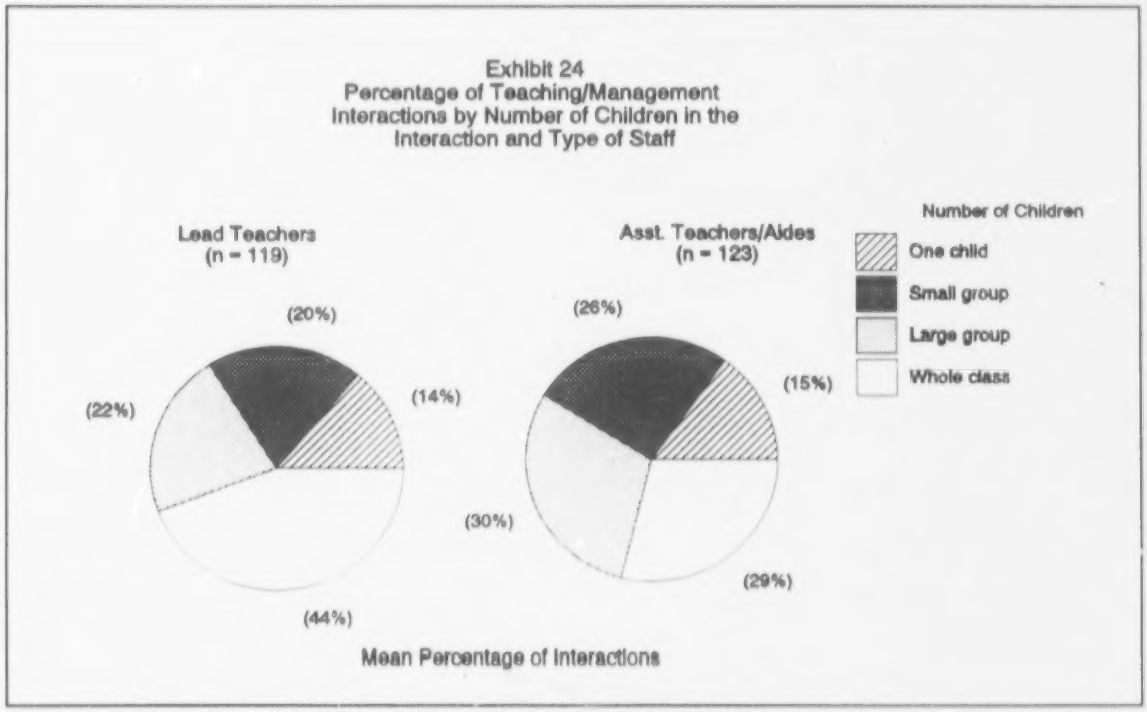
The majority of children's social behavior (about 60 percent) occurred within pairs or small groups of children. Interactions in which children were working in groups of six or more or with the whole class typically represent over one-third of the interactions (Exhibit 23).

Quality of the Interactions Between Adults and Children

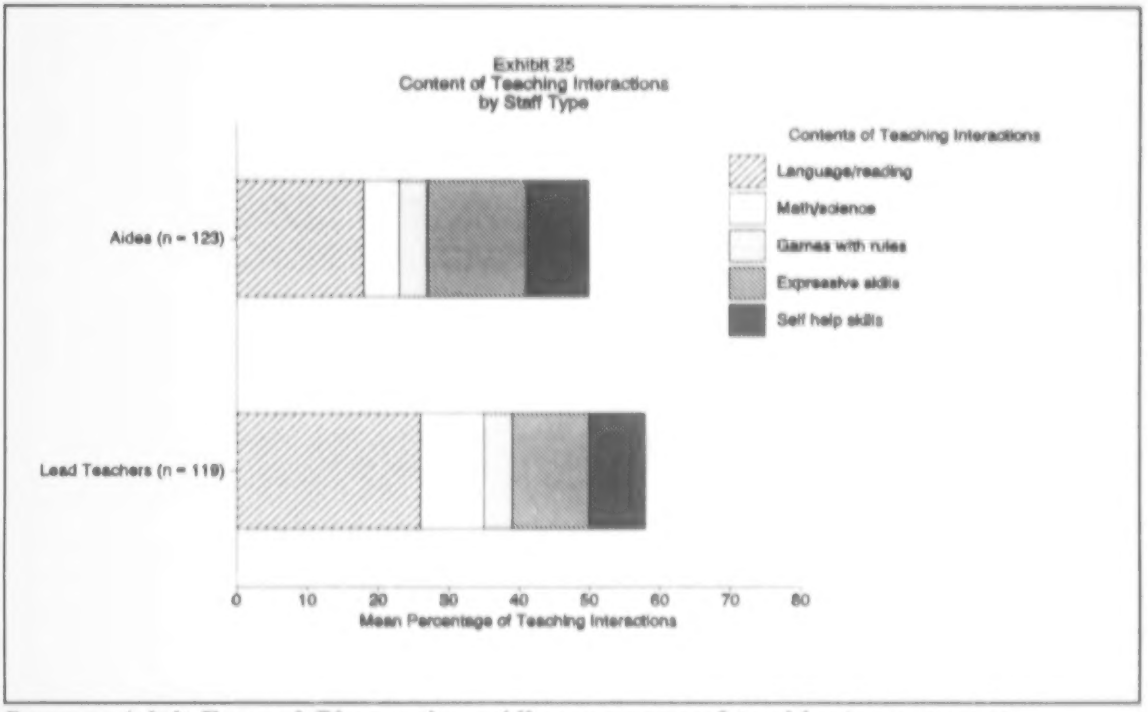
As Exhibit 17 showed, the largest fraction of staff time is taken up by teaching or managing children's behavior. The next set of analyses looked at the participants in these teaching and management interactions and the content of the interactions. A significantly greater proportion of lead teachers' interactions were with the whole class (44 percent vs. 29 percent for aides). Interactions with individual children were least frequent for both types of staff -- about 15 percent of all teaching or management interactions (Exhibit 24). More than half of all teaching and management interactions with children were used to teach children, rather than manage their behavior. Teachers were significantly more involved in such interactions (almost 60 percent), compared with 50 percent for aides. Conversely, aides used more of their interactions to manage children's behavior than did teachers (50 percent vs. 40 percent). Teachers spent considerably more time than aides (about 35 percent vs. 23 percent) in



Source: Child-Focused Observation: Interaction Sample
(n = 119 classrooms)



Source: Adult-Focused Observation: Interaction Sample

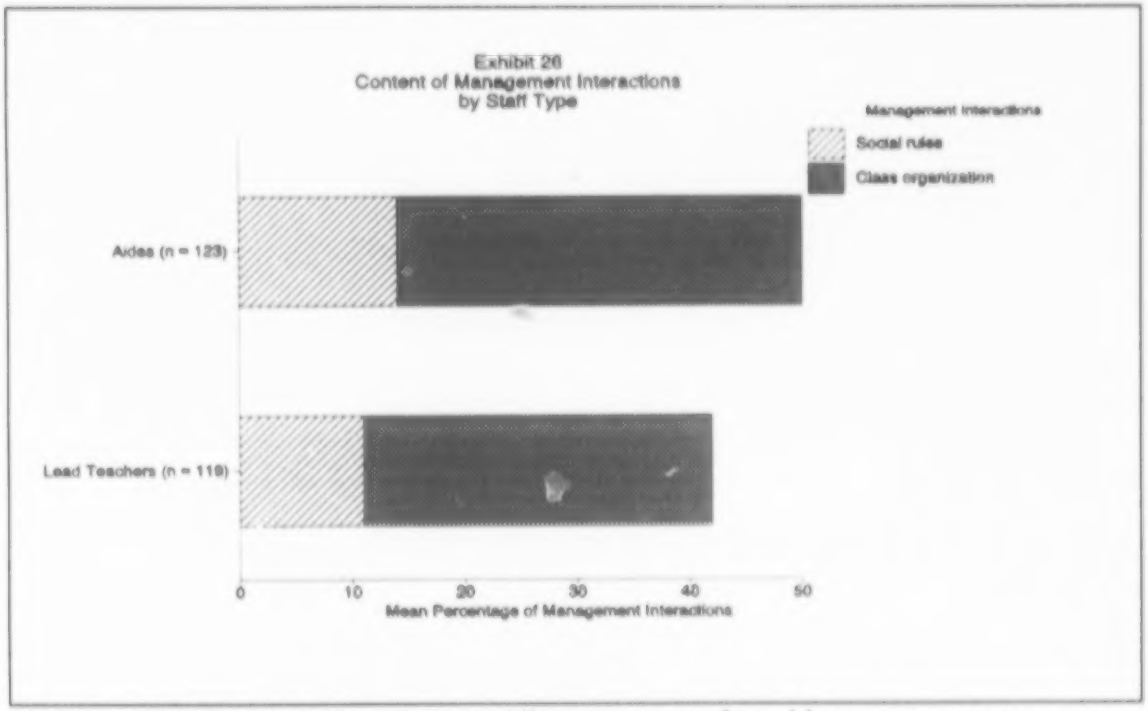


Source: Adult-Focused Observation. All occurrences of teaching/management

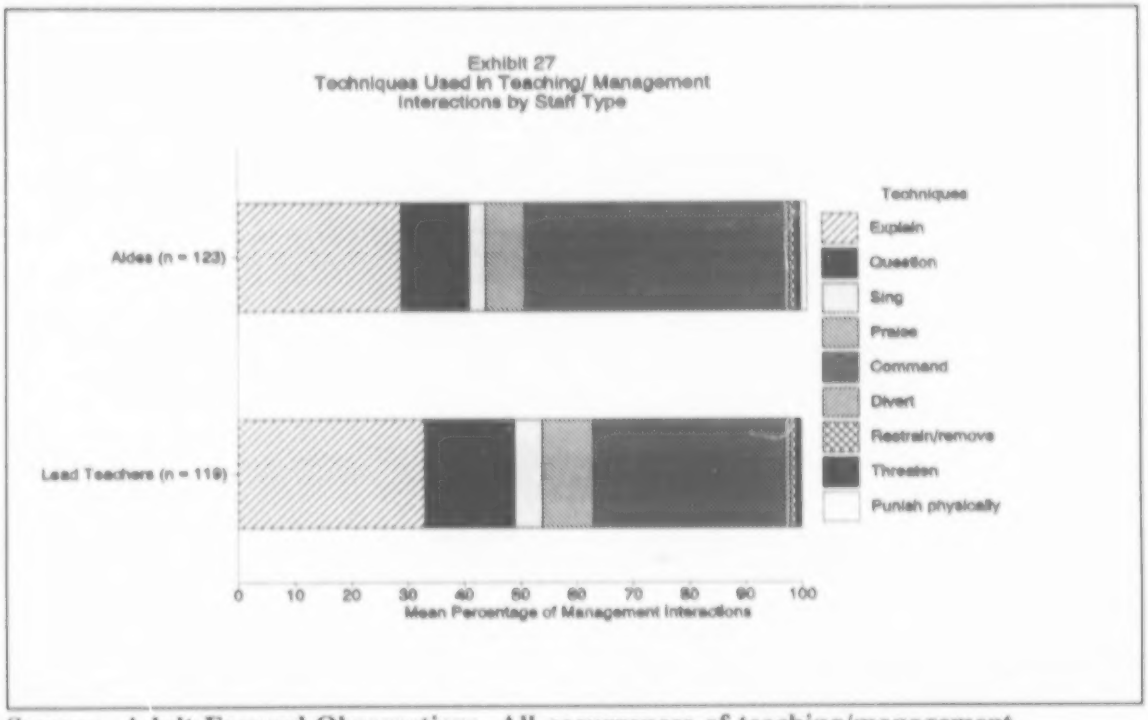
interactions that involved teaching language, math or science concepts (Exhibit 25). Aides spent significantly more of their interactions than teachers did in organizing classrooms (e.g., lining children up) (Exhibits 26).

In their teaching and management interactions with children, staff used a variety of techniques. Positive techniques (explain, question, praise, sing) were observed in about half of the teaching and management interactions. Teachers were more likely than aides to use these positive teaching techniques. For teachers, almost two-thirds of their teaching techniques were positive, vs. 41 percent for aides. Aides used direct commands in close to half their interactions with children; teachers used direct commands in about one-third of their interactions. Negative ways of managing children -- threats or physical punishment--were used very infrequently by either teachers or aides (Exhibit 27).

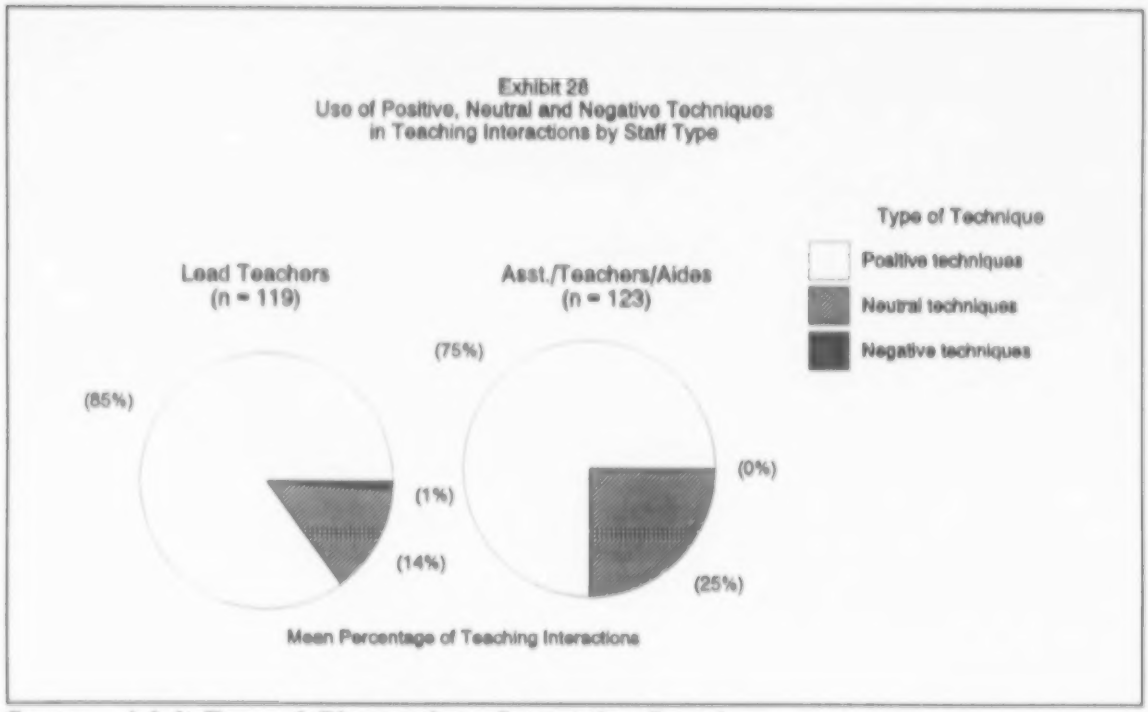
Both teachers and aides used positive techniques in the majority of their teaching interactions with children, although teachers used positive (versus neutral) techniques significantly more often than aides (Exhibit 28). In the management interactions, teachers and aides used more neutral techniques (at least half the time). In these management interactions, teachers again used positive techniques more often than aides (Exhibit 29).



Source: Adult-Focused Observation. All occurrences of teaching management



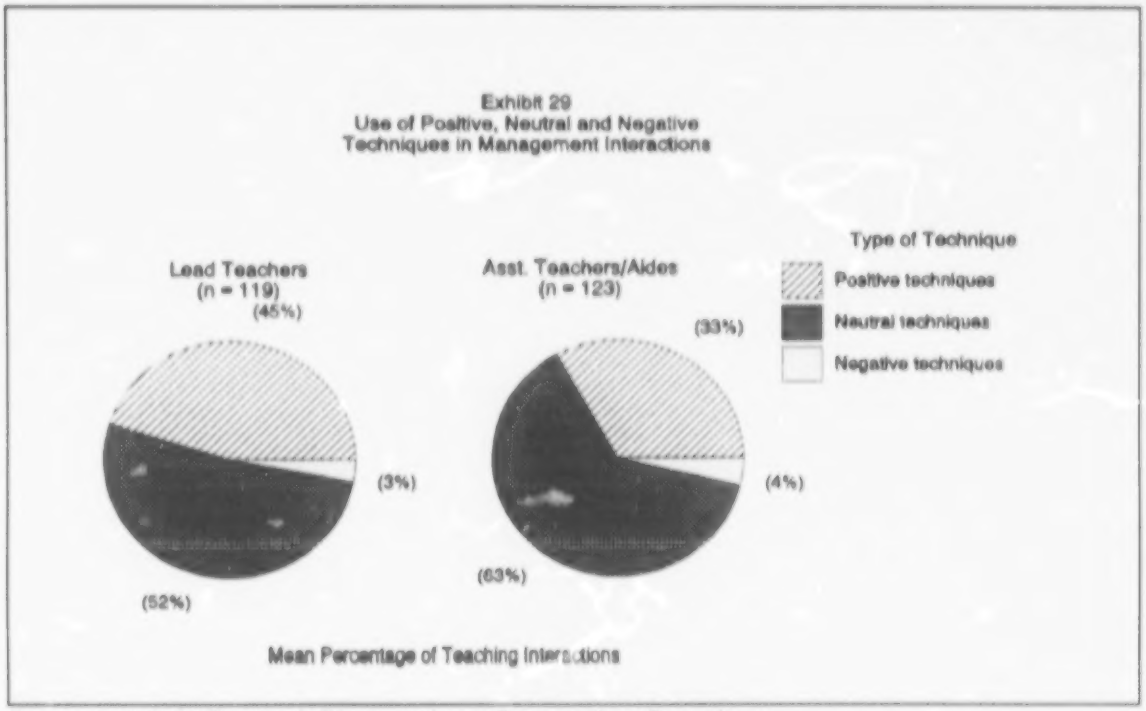
Source: Adult-Focused Observation: All occurrences of teaching/management



Source: Adult-Focused Observation: Interaction Sample

Children's Behavior

This study did not collect data on the developmental level or skills of individual children in the classrooms. Instead, the Child-Focused Observation (CFO) was developed to provide aggregate class-level information on children's behavior. Two types of behavior recorded on the CFO are of particular interest as both characteristics of high-quality early childhood environments and as child outcomes--children's involvement in activities with goals and the cooperative strategies children use in their social interactions. The focus on these child behaviors is based on the work of Martha Bronson, who has developed a framework for defining children's overall functional competence and measuring it through naturalistic observation of children in the classroom using the Bronson Executive Skills Profile (Bronson, 1975, 1990, 1991). Bronson's theoretical framework is derived from information-processing models that emphasize goal-orientation and organizational skills for the development of competence (e.g., Baker-Sennett, Matusov and Rogoff, 1992; Brown & DeLoach, 1978; Bruner, 1986; Casey, Bronson, et al., 1991; Kreither and Kreither, 1987a, 1987b). In this perspective, competence is considered to involve skills in effective self-direction, such as organizing, planning, initiating,

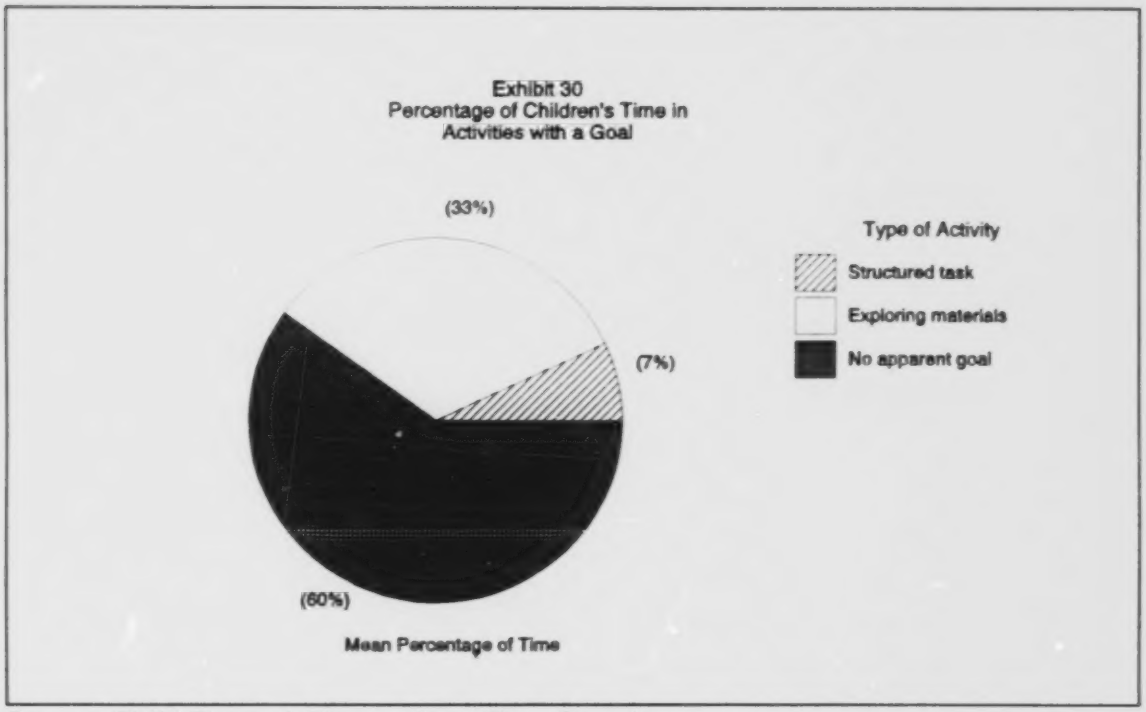


Source: Adult-Focused Observation: Interaction Sample

sustaining and successfully carrying out social and mastery activities. The higher-order social strategies in the Child-Focused Observation are referred to as "social cooperative strategies" in Bronson's work. These strategies are presumed to reflect organizing and planning skills in the social area.

Involvement in Activities with Goals. As part of the CFO, the activity in which the child was engaged was judged as having a goal or not. Activities with goals include either structured tasks or exploration of materials. In these early childhood classrooms, children were, on average, involved in activities with a goal about 40 percent of the time, (Exhibit 30). Most of this activity involved exploring materials rather than structured activities such as puzzles or worksheets.

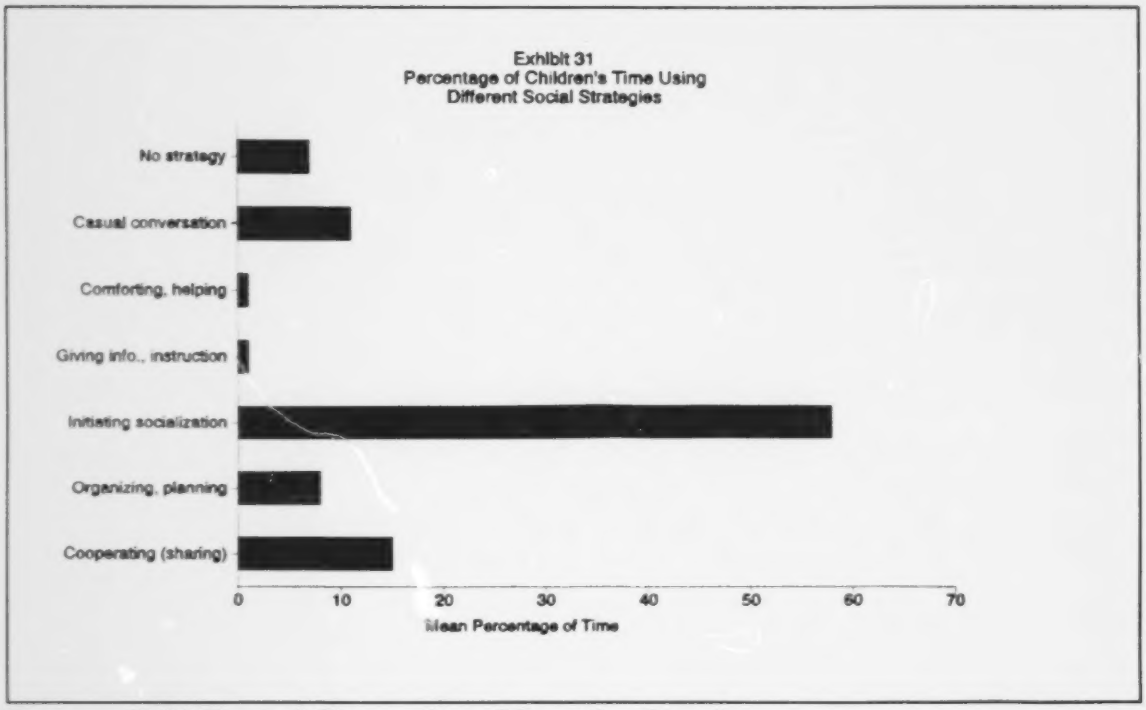
Social Strategies. When a child engaged in an interaction with other children or the teacher, the observer coded the type of social strategy implied by the child's speech or activity. Exhibit 31 presents the strategies and their frequencies in the study sample. (Note that strategies were attributed to children only when they were child-initiated and not when an adult suggested



Source: Child-Focused Observation: Time Sample

it to the child.) The most common strategy used was "initiating socialization"--the child's attempts to influence or get attention from another child, for example, asking to play or asking for help. This occurred in over half of the recorded interactions. Cooperative social strategies were observed in 15 percent of children's interactions. Some examples of cooperative strategies are: the child suggests or initiates sharing resources or pooling resources; the child suggests or initiates taking turns; or, the child works with others to produce an effect or achieve a goal.

Organizing and planning strategies were exhibited when children were initiating or organizing a joint activity. Some examples include assigning roles of teams ("You be the father and I'll be the mother") or stating rules for a game. These types of strategies occurred infrequently, in about 8 percent of children's social interactions. Giving information or instruction was virtually never used by children with other children (in 1 percent of the interactions). An example was when one child showed a peer how to work the computer. When a child offered help or consolation to another child, it was defined as comforting or helping and occurred in about one percent of the interactions. Conversation, not considered a formal

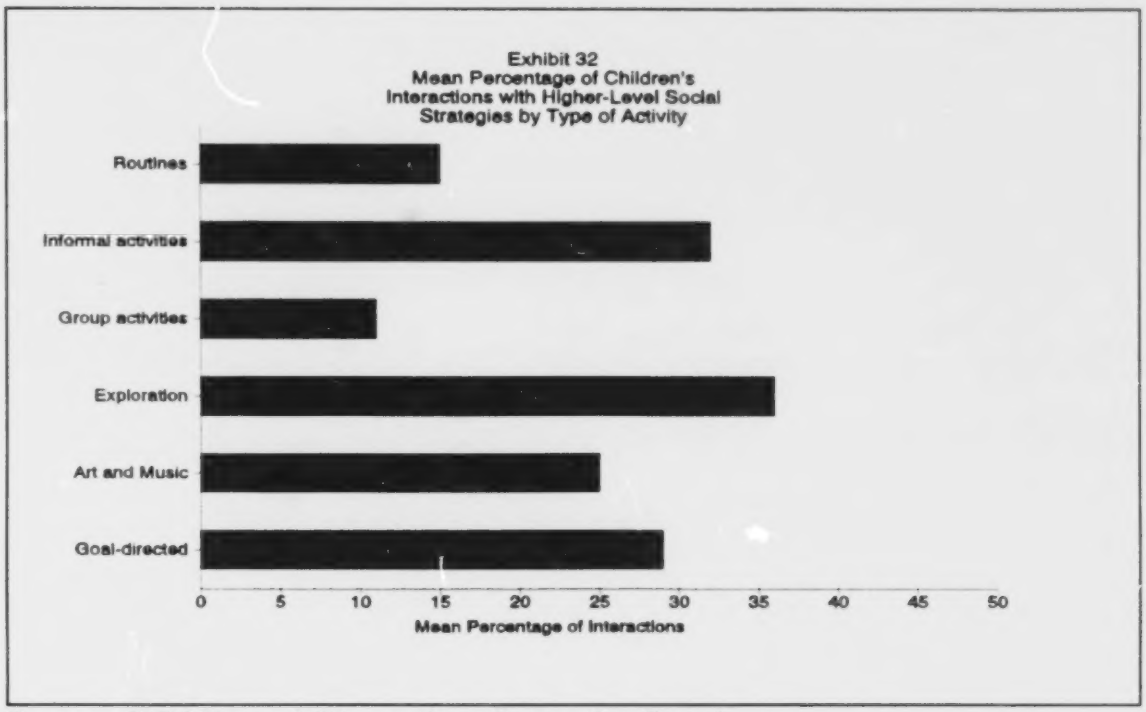


Source: Child-Focused Observation: Interaction Sample

strategy, was coded when a child conducted a brief conversation with another child that could not be characterized as a strategy. It occurred in 11 percent of the interactions.

The set of strategies were considered to form a rough hierarchy, with cooperating and organizing representing higher-level strategies. Children who exhibited more of these strategies in preschool are reported to have better outcomes in later school years (Bronson, Pierson, Tivnan, 1984).

Slightly less than a quarter of children's interactions involved higher-level social strategies. Higher-level social strategies were more likely to occur in certain activity contexts. Exploration activities, such as dramatic or fantasy play, as well as active, informal play were more likely to evoke them. Higher-level strategies were least likely to be used during group time, in transition activities, or during any of the classroom routines such as cleaning up or setting out materials (Exhibit 32).



Source: Child-Focused Observation: Interaction Sample

Although there would probably be broad agreement on the desirability of children's spending time on activities with goals, there is no agreed-upon standard or criterion on which to judge the adequacy of the environment on this characteristic. A similar statement can be made about children's use of higher-order strategies. Nevertheless, we assume that classrooms in which these behaviors occurred for only a small fraction of time are of lower quality. Exhibit 33 shows that, in about eight percent of the classrooms, children were engaged in activities with goals for only a small percentage (less than 10 percent) of the time. In almost 29 percent of the classrooms, very few (less than 10 percent) of children's interactions involved the use of higher-order social strategies.

Measures of Quality: Teacher/Child Interaction and Children's Behavior

From the description of teachers' and children's behavior in the classroom we extracted a set of measures that we believe reflect developmentally-appropriate practice and that we would expect to see in high-quality early childhood environments. The first are aspects of interactions between teachers and children, and include:

- the percentage of time the teacher is actively involved with children (versus observing, preparing or out of the room);
- the percentage of time the teacher is teaching the children;
- the percentage of interactions in which teacher is teaching language/numbers/math or science; and
- the percentage of interactions in which the teacher uses positive versus negative techniques; and
- the percentage of children in the class with no one-to-one interaction with an adult.

We also selected two measures of children's behavior in the classroom that we would expect to see in high-quality settings. The two measures are:

- the percentage of time children are engaged in activities with goals; and
- the percentage of interactions in which children demonstrate higher-level social strategies.

Exhibit 33 shows the measures and their averages for the classrooms in the study. Exhibit 34 shows how classrooms vary in the proportion of time that these interactions and behaviors occurred. In further analyses (described in Chapter 6), these indicators are examined as a function of program, classroom and staff, characteristics.

Exhibit 33

Percentage of Core Program Time in Teacher/Child Interactions and Child Behaviors Defined as Quality Measures (n=119 classrooms)

Quality Measures	Percentage of Time		
	$\bar{x}$	(s.d.)	median
Teachers' Interactions with Children			
Teacher actively involved with children[a]	68.6%	(15.7)	71.2%
Teacher is teaching children[a]	31.4	(15.3)	30.0
Interactions in which teacher is teaching cognitive concepts[b]	34.5	(20.1)	30.7
Interactions with children in which teacher uses positive techniques[b]	63.3	(17.5)	63.2
Interactions with children in which teacher uses negative techniques[b]	2.3	(3.8)	1.0
Children in classrooms with no one-to-one adult attention	30.9%	(15.4)	28.9%
Children's Behavior			
Children engaged in activity with goal[c]	39.7	(16.0)	39.4
Children's interactions involving higher-level social strategies[d]	22.9	(15.2)	20.2

[a]Source: Adult-Focused Observation: Time Sample
[b]Source: Adult-Focused Observation: Interaction Sample
[c]Source: Child-Focused Observation: Time Sample
[d]Source: Child-Focused Observation: Interaction Sample

Exhibit 34

Percentage of Classroom by Amount of Time in Teacher/Child Interactions and Child Behaviors Defined as Quality Measures (n=119 classrooms)

Quality Measures	Percentage of Time				
	0-10% of Time	11-25% of Time	26-50% of Time	51-75% of Time	76-100% of Time
Teacher Interactions with Children					
Teacher actively involved with children[a]	0.0%	0.8%	14.3%	43.7%	41.2%
Teacher is teaching children[a]	7.6	26.0	53.8	11.8	0.8
Interactions in which teacher is teaching cognitive concepts[b]	11.8	21.8	46.2	16.8	3.4
Interactions with children in which teacher uses positive techniques[b]	1.7	0.8	18.5	56.3	23.5
Interactions with children in which teacher uses negative techniques[b]	95.0	5.0	0.0	0.0	0.0
Children in classrooms with no one-to-one adult attention	0.8	16.8	58.0	22.7	1.7
Children's Behavior					
Children engaged in activity with goal[c]	8.4	31.9	47.9	11.0	0.8
Children's interactions involving higher-level social strategies[d]	28.6	30.2	35.3	5.9	0.0

[a]Source: Adult-Focused Observation: Time Sample
[b]Source: Adult-Focused Observation: Interaction Sample
[c]Source: Child-Focused Observation: Time Sample
[d]Source: Child-Focused Observation: Interaction Sample

CHAPTER SIX

MEASURING AND PREDICTING THE QUALITY OF THE CLASSROOM EXPERIENCE

The two preceding chapters described the classroom experience and identified aspects of this experience that represent dimensions of quality. This chapter begins by outlining findings from four other instruments that provided more global assessments of the quality of the environment. These global assessments, together with the measures of quality constructed from the micro-observations and data on programs, classrooms and staff, comprise the essential elements of our final task--to examine the linkages between characteristics of early childhood programs, aspects of the classroom experience and "quality" defined in a variety of ways. In the remainder of this chapter, we present the findings from these analyses.

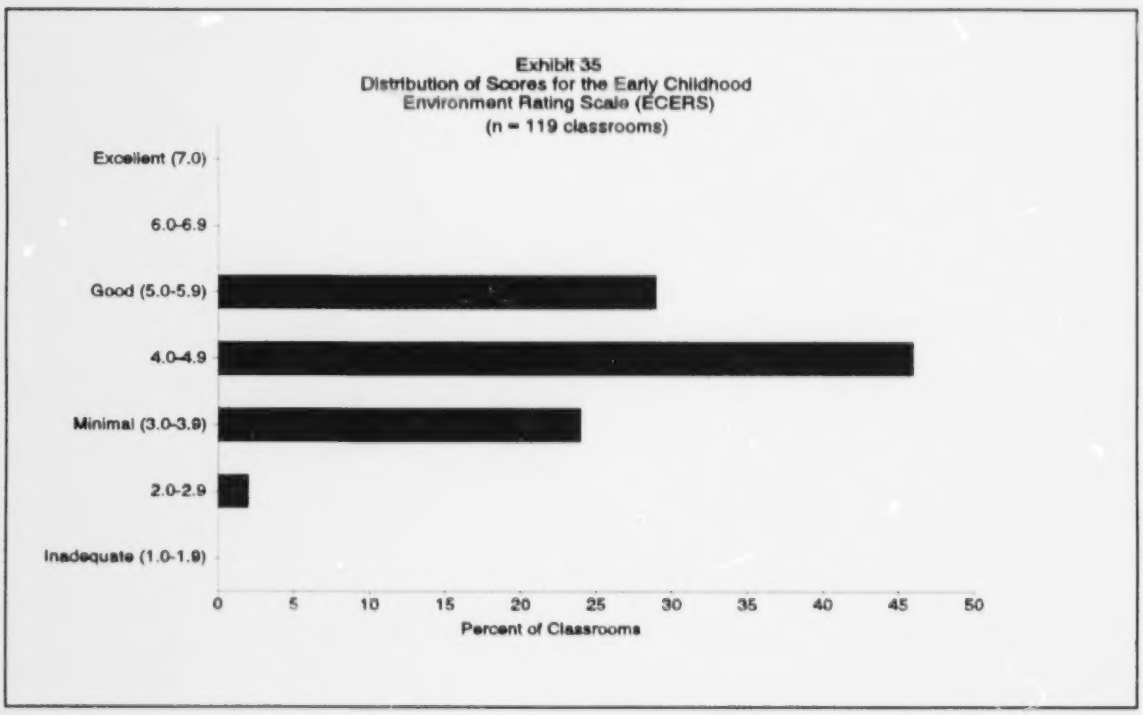
Overall Quality of the Classrooms

The overall quality of the classroom was measured with three instruments that provided scores for each classroom, built from ratings of multiple aspects of the environment, including the physical space, equipment, materials, health and safety practices, curriculum, scheduling, and teacher behavior. The three were: the Early Childhood Environment Rating Scale (ECERS); the Assessment Profile for Early Childhood Programs; and the Description of Preschool Practices (DPP). A fourth instrument, the Arnett Global Rating Scale, was used to assess the teacher's emotional tone in her interactions with children, an aspect of the classroom experience not assessed by any of the other instruments used for the study. Descriptions of the instruments, scoring procedures and reliability estimates are contained in Appendix C. Detailed tabular information on total scores and subscale scores for the four measures can be found in Appendix tables A48 to A53.

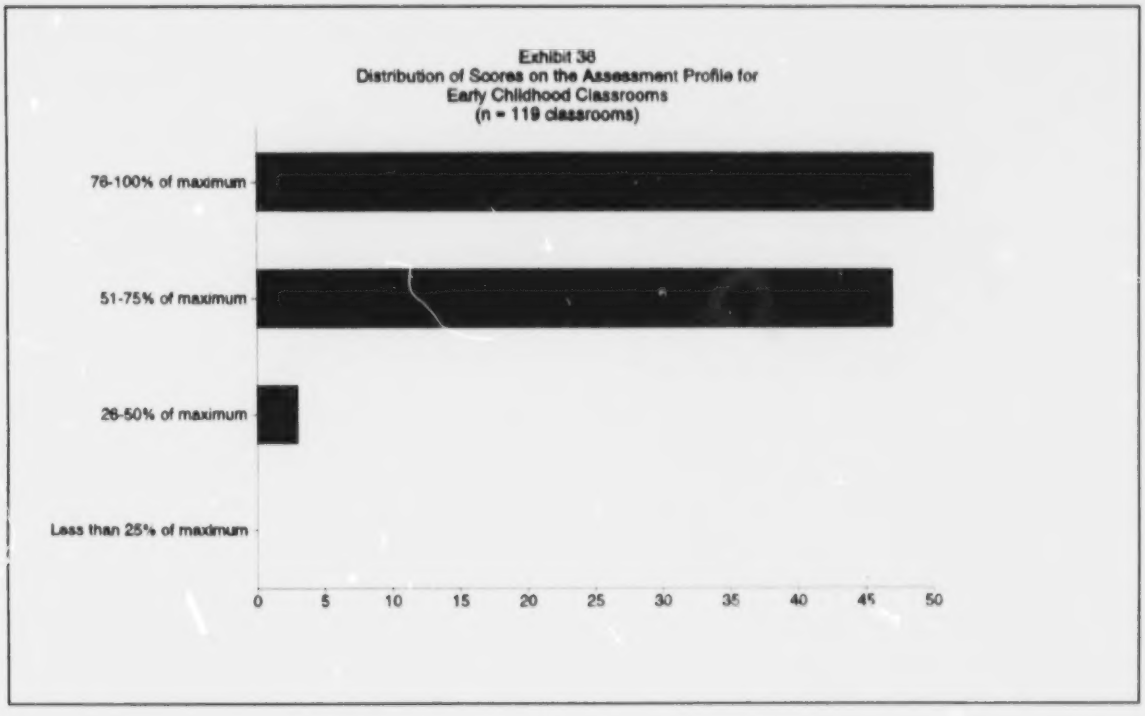
As a group, the classrooms in the study, were rated as having an "acceptable" level of quality on each of the global classroom quality measures. For the **ECERS**, the overall average score was 4.5 points (out of a possible 7 points) where a rating of "3" is defined as "minimal"

and a rating of "5" is defined as "good". The means for each of the seven subscales also fell between 4 and 5. A further breakdown of scores indicated that there were few programs rated at the extremes as either inadequate or excellent (Exhibit 35). Very few programs were rated as being below minimal overall quality (a score less than 3.0). Twenty-nine percent of the programs were rated as being "good" quality (a score of 5.0). No programs were rated as excellent quality (6.0 or above).

For the **Assessment Profile**, the mean score was 108 out of a possible score of 147. This indicates that, on average, the programs received a positive rating on 73 percent of the items on the scale. Although no standard criteria have been established as to the score on the



Profile that defines "high" quality, discussions with the test developers suggest an informal rule of 75 percent as a cut-off for "acceptable" quality. As Exhibit 36 shows, half of the programs were rated positively on more than 75 percent of the items and, in fact, very few programs received positive ratings on less than half of the items.



For the **DPP**, the overall average score was 3.6 out of a possible 5. Since on the scale 3 is "sometimes" and 5 is "most of the time", the score indicates that, on average, developmentally appropriate practices were observed sometimes but not consistently. The separate averages for Appropriate and Inappropriate items told a similar story: Appropriate practices were observed, on average, "sometimes," while Inappropriate practices were observed between "rarely" and "sometimes". For scores on both developmentally appropriate and inappropriate behaviors, no more than 15 percent of the teachers were rated at the negative extremes. The distribution of scores was similar for assistant teachers/aides, although more received ratings at the negative extremes on the scales.

Among the practices defined as being developmentally-appropriate, classrooms in the study had an average rating of 3.5 or higher on most of the items. The few items with lower ratings (around 3.0) dealt with how consistently children were taught abstract concepts through real-life experiences or hands-on activities. Inappropriate practices were not commonly observed in the study classrooms. The most frequently observed were use of larger group instruction,

teacher-direction rather than self-direction for children's schedule and activities, and teachers asking children to copy teacher-made forms or models.

On the **Arnett Global Rating Scale**, teachers were, on average, rated moderately high (3.3 out of a possible 4) on warm, responsive behaviors and low (1.4 out of a possible 4) on harsh, negative behaviors. Aides were rated slightly lower (3.0) on warm, responsive behaviors and similarly to teachers on harsh, negative behaviors.

The ECERS, the Assessment Profile and the DPP each evaluate the quality of the classroom environment. Each is based on a set of assumptions about what constitutes quality in the classroom. Although they all contain unique items, there is considerable overlap in the aspects of the environment assessed--curriculum, for example, or style of instruction. Therefore, we would expect some relationship, among these three measures. In fact, the three measures were highly and significantly correlated, with the correlations ranging from .69 to .93. While the Arnett Global Rating Scale is also a broad measure of quality, it focuses more narrowly on an aspect of teacher behavior not directly measured by the other three instruments. Therefore, we would not expect it to be highly correlated with them. The correlations of the Arnett scores with the other global scores were lower but still statistically significant, ranging from .43 to .67.

Predicting the Quality of the Early Childhood Setting

One of the main questions of the study concerned the relationship between quality in the early childhood setting and a variety of program, classroom, and staff characteristics hypothesized to be related to quality. In these analyses the dependent measures of quality were taken from both the global ratings and the micro-observations. They are:

- Global quality measures
  - ECERS average score
  - Assessment Profile total score
  - Description of Preschool Practices (DPP): Average score for Appropriate Practices
  - DPP: Average score for Inappropriate Practices
  - Arnett Caregiver Rating: Responsiveness

- Arnett Caregiver Rating: Harshness

- Micro-observation measures: Activities and groupings

  - Percentage of goal-directed activities
  - Percentage of exploratory activities
  - Percentage of art/music activities
  - Percentage of time class is engaged in single activity
  - Percentage of time class is engaged in 3 + activities
  - Percentage of time class organized in small groupings only
  - Percentage of time class organized in whole class grouping

- Micro-observation measures: Teacher interaction with children

  - Percentage of time teacher interacts with children
  - Percentage of time teacher teaches children
  - Percentage of teaching focused on cognitive concepts
  - Percentage of positive teaching techniques
  - Percentage of children with no one-to-one interaction with adult

- Micro-observation measures: Children's behavior

  - Percentage of time children engaged in activity with goal
  - Percentage of time children use higher-level strategies

A large set of program characteristics constituted the independent measures used. We included the small set of predictors that previous research showed were related to quality: child/staff ratio, group size, and teacher education. We also looked at other possible predictors of quality, including institutional variables (age of center, type of program, director leadership), structural variables (number and type of staff, age-mix of children), other classroom variables (level of parent involvement, teacher philosophy, proportion of working parents), and teacher background variables (specialized training, experience).

The analyses followed three steps. First, we examined the correlation between the quality measures and the various program characteristics. Second, on the basis of these initial analyses, we identified those characteristics that were significantly and consistently correlated with the quality measures, and then conducted a set of multiple regression analyses to test the relationships between the predictors and the quality measures.

To guard against the concern about spurious significant relationships, a split-sample technique was used. We divided the sample of 119 classrooms into two randomly-assigned groups. The first half of the sample was used in the initial exploratory analysis to identify relationships among the large set of possible predictor variables and the measures of quality. The regression models were then tested on the remaining half of the sample.

Third, a final regression model was selected that included the small number of predictor variables that were identified in the split-sample regressions as reliably related to quality. This model then was tested with each measure of quality. The predictor variables in the final model included ratio, teacher education, and level of parent involvement. The description below presents the findings from the regression analyses using the final model. Findings for the global quality ratings are discussed first, followed by findings for the quality measures constructed from the micro-observations.

Predicting Global Quality Ratings

The first two steps in the analyses of global quality ratings identified three program characteristics that were associated consistently and significantly with differences in quality:

- child staff ratio;
- level of parent involvement[1]; and
- level of teacher education.

This meant that a number of potential predictors were <u>not</u> found to be associated with quality. Notably, these included group size and amount of early childhood teaching experience. While specialized early childhood training was related at a significant level to some of the quality measures, it is also highly confounded with level of teacher education. Therefore, only teacher

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[1]In the current study, parent involvement is defined as the number of types of parent activities (out of 7 possible) in which at least 75% of parents participated. Moderate involvement meant there were either one or two parent activities in which 75 percent participated, while high involvement meant there were three or more such activities.

education was entered in the regression model. Appendix tables A59-A61 provide findings from the correlational analyses.

The results of the regression analyses using three independent variables to predict the global quality ratings are summarized in Exhibit 37. Child/staff ratio was significantly related to each of the global quality ratings, after controlling for the effects of two other variables -- level of teacher education and level of parent involvement. That is to say, lower child/staff ratios are associated with higher global quality ratings. Similarly, level of teacher education remains related to five of the six global quality ratings, after controlling for the effects of child/staff ratio and parent involvement. Classrooms of teachers with a college degree tend to have higher quality ratings. In four of six models, parent involvement (involvement of a majority of parents in several different types of activity) was positively related to higher quality ratings after controlling for child/staff ratio and teacher education.

As shown in Exhibit 37, the explanatory power of any of these models ranges from 6 percent (on teacher harshness) to 27 percent (on the DPP-Inappropriate Practices). The fact that even in the best of models, a substantial portion of the variation in quality remains unexplainable suggests that these models are best thought of as incomplete. There are other important variables relating to global quality ratings that are not included in the model. For instance, information about individual children in these classrooms, (which was not collected for the study) might be related to quality ratings.

It should be noted that although the coefficients corresponding to each of the predictor variables in the models are significant, they are not substantively large. As an example, consider the first model that predicts scores on the ECERS. The coefficient of child-staff ratio is -.08. This means that for every increase of one in the child-staff ratio, ECERS scores, on average, will decrease .08 of a point or less than one-tenth of a standard deviation.

Exhibit 37

Multiple Regression Models for Global Quality Measures

Global Quality Measure	Overall Model			Intercept		Child/Staff Ratio		Level of Teacher Education		Parent Involvement	
	R^2	F	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
ECERS	.21	11.7	.0001	4.1	.0001	-0.1	.002	0.3	.034	0.3	.0002
Assessment Profile	.26	13.7	.0001	119.6	.0001	-2.5	.0001	1.3	.64	6.6	.0005
DPP: Appropriate Practices	.23	11.2	.0001	2.8	.0001	-0.1	.0005	0.4	.01	0.3	.003
DPP: Inappropriate Practices	.27	14.2	.0001	2.5	.0001	0.1	.0001	-0.3	.006	-0.2	.006
Arnett: Teacher Warmth	.10	5.4	.002	24.9	.0001	-0.5	.02	3.4	.002	0.3	.73
Arnett: Teacher Harshness	.06	3.6	.016	12.0	.0001	0.3	.02	-1.5	.03	-0.2	.69

Predicting Quality Measures Based on the Micro-observations

In earlier chapters, measures of quality were identified from the three classroom observation systems: seven variables describing quality of activities and grouping patterns, five describing quality of teacher interactions with children and two describing child behavior. The analyses began by examining bivariate relationships between each of the quality measures and the set of program characteristics. (The correlations are presented in Appendix tables A62-A65.) The same regression model tested on the global quality ratings was then tested on the measures of quality derived from the micro-observations.

Activities and Groupings. There were only a few scattered significant relationships between activity and grouping patterns and the program characteristics (Exhibit 38). Child/staff ratio was significantly related to time spent in small groupings; classrooms where children spent more time in small groups tended to have lower child/staff ratios. It also was related to time in art/music activities; classrooms with more art and music tended to have lower child/staff ratios. There were no significant associations between the measures of activities and groupings and either teacher education or parent involvement.

Teacher Interaction with Children. The regression models for the measures of quality for teacher interactions with children were statistically significant (Exhibit 39). While ratio was not related to these qualities of teacher interaction, teacher background was. Teachers with a B.A. spent more time interacting with children, more time teaching, more time teaching language/number concepts, and used positive techniques more of the time. Parent involvement also was associated with teacher interaction. In classrooms with more parent involvement, teachers also tended to interact more with children and to spend more time teaching them.

Children's Behavior. The two quality measures for children's behavior presented different pictures (Exhibit 40). The amount of time children were engaged in activities with goals was related to the predictors, while amount of higher-level strategies was not. In classrooms with lower child/staff ratios, children spent more time in activities with goals. This was also true for classrooms in which the lead teacher had a college degree.

Exhibit 38

Multiple Regression Models for Micro-Observation Quality Measures: Activities and Groupings

Micro-observation Quality Measure	Overall Model			Intercept		Child/Staff Ratio		Level of Teacher Education		Parent Involvement	
	R^2	F	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
Goal-directed activ.	.03	1.1	.35	0.3	.0001	0.01	.22	0.01	.60	-0.01	.31
Exploratory activ.	.03	1.2	.32	0.2	.0001	-0.01	.17	-.01	.80	0.01	.33
Art/music activ.	.07	3.1	.03	0.2	.0001	-0.004	.03	0.01	.10	-0.01	.08
Class in 1 activ.	02	0.6	.63	10.2	.0002	0.8	.27	1.5	.52	-.2	.91
Class in 3+ activ.	.03	1.3	.30	5.7	.0002	-0.6	.09	.02	.98	-1.5	.22
Class in small groupings	.08	3.4	.02	77.8	.0001	-2.1	.004	-3.4	.17	-1.2	.60
Class in one large group	.02	1.0	.41	26.0	.003	0.7	.21	2.0	.28	-0.4	.83

Exhibit 39

Multiple Regression Models for Micro-Observation Quality Measures: Teacher Interaction with Children

Micro-observation Quality Measure	Overall Model			Intercept		Child/Staff Ratio		Level of Teacher Education		Parent Involvement	
	R^2	F	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
Teacher interaction with children	.16	7.4	.0001	43.1	.0001	-0.1	.91	5.9	.003	6.3	.001
Teacher teaching children	.15	6.7	.0003	16.3	.08	0.7	.25	7.0	.0009	5.0	.01
Teacher teaching cognitive concepts	.13	5.6	.001	-10.3	.37	1.2	.12	9.5	.0004	1.8	.47
Teacher using positive techniques	.10	4.1	.008	43.4	.0001	-0.6	.34	6.7	.004	2.6	.24
Children with no one-to-one interaction with adult	.07	3.1	.03	0.2	.002	0.01	.05	-0 2	.86	-0.04	.07

Exhibit 40

Multiple Regression Models for Micro-Observation Quality Measures: Child Behavior

Micro-observation Quality Measure	Overall Model			Intercept		Child/Staff Ratio		Level of Teacher Education		Parent Involvement	
	R^2	F	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
Engagement in activity with goals	.11	4.6	.004	58.3	.0001	-1.7	.007	4.6	.03	3.6	.07
Use of higher-level social strategies	.02	0.9	.42	0.3	.0007	0.01	.13	0.01	.80	0.01	.70

To summarize the findings from the regression analyses across the multiple measures of quality:

- **Child/staff ratio** was associated with all of the global measures of classroom quality and with amount of individual adult/child interaction. Higher quality was related to fewer children per staff.

- **Teacher education** was associated particularly strongly with teacher affect and behavior; teachers with a college degree tended to be more responsive to children, to use positive techniques more often, and to spend more time interacting with children and more time teaching children. Teacher education was also related to amount of classroom time in which children were in activities with goals and to frequency of developmentally-appropriate practices. Specialized education or training in early childhood education of the teacher was associated with higher scores on two of the global quality ratings and to children's engagement in activities with goals. This variable is highly related to level of education, so it was not entered as a predictor along with education.

- **Level of parent involvement** was associated with a higher overall quality rating as well as with more teacher involvement with children, more teaching, and more children with individual attention from the teacher.

Differences in Global Quality Ratings for Different Program Types

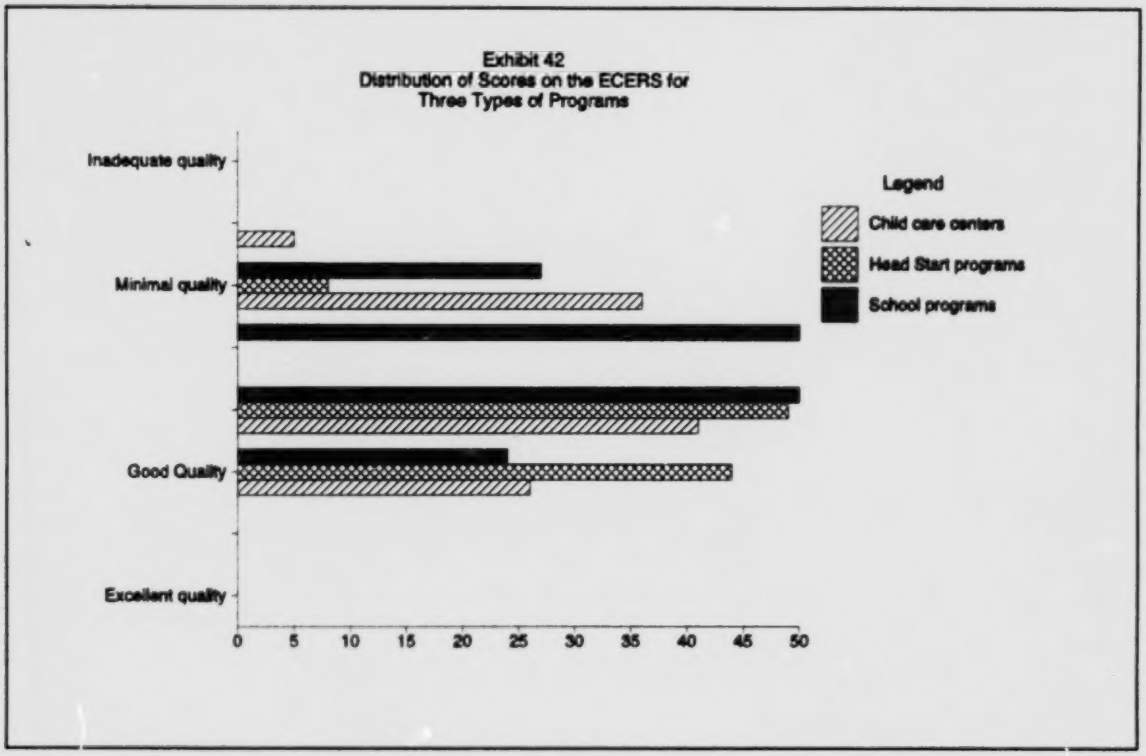
The sample comprised three types of programs: child care centers, Head Start programs, and school-sponsored programs. Chapter Three presented data showing that the three types differed on a variety of institutional characteristics (e.g., length of day, provision of extended care), structural characteristics (e.g., ratio, classroom characteristics) and staff background (e.g., level of teacher education). These three types of programs also differed in their overall quality, as measured by the global ratings. The three types differed in their overall scores: the child care centers tended to have lower average quality ratings (Exhibit 41). The **range** of variation in quality also differed among each group of programs. The distributions of quality ratings for each of the three types shows that the sample of child care centers included more classrooms rated at the lower end of the range (Exhibit 42).

We tested the regression model that was developed for the full sample (including ratio, teacher education, and parent involvement as predictors) for the three types of programs. The

Exhibit 41

Mean Scores on Global Quality Ratings by Type of Program

	Type of Program								Group Differences							
	Child Care Centers (n=42)		Head Start Programs (n=39)		School-sponsored Program (n=38)		All Types (n = 119)		Overall Between Group Difference		Child Care Centers vs. Head Start		Head Start vs. School-sponsored		Child Care Centers vs. School-sponsored	
Quality Measures	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	F	signif.	t	signif.	t	signif.	t	signif.
ECERS	4.2	(0.8)	4.9	(0.6)	4.5	(0.7)	4.5	(0.7)	11.5	.0001	-4.7	.0001	3.1	.003	-1.8	.08
Assessment Profile (max = 147)	103.1	(20.1)	116.5	(10.8)	105.0	(11.9)	108.1	(16.1)	9.1	.0001	-3.8	.0001	4.4	.0001	-0.5	.57
DPP: Inappropriate Behaviors	2.49	(.83)	1.88	(.44)	2.15	(.66)	2.18	(.71)	8.4	.0001	4.1	.0001	-2.1	.04	2.0	.04
DPP: Appropriate Behaviors	3.08	(1.02)	3.72	(.72)	3.60	(.73)	3.46	(.84)	6.7	.002	-3.3	.002	0.7	.43	-2.6	.01
Arnett: Teacher Warmth	30.3	(7.4)	33.2	(4.6)	34.8	(4.4)	32.7	(6.0)	6.0	.003	-2.1	.04	-1.5	.14	-3.2	.002
Arnett: Teacher Harshness	11.2	(4.8)	8.7	(2.2)	8.9	(3.2)	9.6	(3.7)	6.2	.003	3.0	.004	-0.3	.74	2.6	.01



predictors had different relationships to global quality in the three program types (Exhibits 43-45). The regression models were significant overall only for the group of child care centers. This is explained primarily by the strong relationship in child care centers between child/staff ratio to global quality ratings. In fact, ratio was significantly related to global quality only in child care centers. Teacher education and parent involvement were not associated with quality at a significant level in any of the three types of programs. Earlier we presented findings showing that both of these predictors vary as a function of program type. Therefore, it is possible that the significant relationships of these two predictors to quality in the full sample reflects, at least in part, differences in quality by type of program.

The findings can be summarized as follows: the range of quality scores is wider among child care centers, and includes more low-end scores than are in the other two types of programs; and as a consequence of this greater variation, the predictors are more strongly related to global quality among child care centers.

Exhibit 43

Multiple Regression Models for Global Quality Measures: Child Care Centers

Global Quality Measure	Overall Model			Intercept		Child/Staff Ratio		Level of Teacher Education		Parent Involvement	
	R^2	F	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
ECERS	.35	6.8	.001	5.1	.0001	-0.1	.0004	0.1	.39	0.2	.29
Assessment Profile	.46	10.8	.0001	127.0	.0001	-2.5	.0001	0.2	.65	10.6	.007
DPP: Appropriate Practices	.38	7.9	.0003	4.6	.0001	-0.2	.0004	-0.04	.83	0.4	.03
DPP: Inappropriate Practices	.33	6.2	.002	1.4	.03	0.2	.0007	-0.06	.68	-0.2	.19
Arnett: Teacher Warmth	.20	3.1	.04	33.8	.0001	-0.9	.02	1.4	.36	1.6	.36
Arnett: Teacher Harshness	.13	1.8	.17	7.4	.10	0.6	.04	-0.4	.63	-0.05	.97

Exhibit 44

Multiple Regression Models for Global Quality Measures: Head Start Programs

Global Quality Measure	Overall Model			Intercept		Child/Staff Ratio		Level of Teacher Education		Parent Involvement	
	R^2	F	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
ECERS	.10	1.3	.28	4.3	.0001	0.05	.37	-0.05	.76	0.3	.07
Assessment Profile	.07	0.9	.44	125.8	.0001	-0.1	.94	-4.0	.16	3.4	.25
DPP: Appropriate Practices	.03	0.4	.78	3.6	.0001	0.04	.62	-0.1	.53	0.2	.32
DPP: Inappropriate Practices	.04	0.5	.67	2.2	.0001	-0.01	.86	-0.04	.73	-0.1	.34
Arnett: Teacher Warmth	.04	0.5	.68	36.6	.0001	0.1	.80	-1.2	.34	-0.4	.79
Arnett: Teacher Harshness	.10	1.3	.29	8.2	.001	-0.2	.27	0.5	.33	0.4	.45

Exhibit 45

Multiple Regression Models for Global Quality Measures: School-sponsored Programs

Global Quality Measure	Overall Model			Intercept		Child/Staff Ratio		Level of Teacher Education		Parent Involvement	
	R^2	F	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
ECERS	.04	0.7	.48	4.4	.0001	-0.01	.87	All lead teachers had		0.2	.23
Assessment Profile	.00	0.02	.98	106.3	.0001	-0.2	.87	college degrees		0.2	.95
DPP: Appropriate Practices	.05	1.0	.40	4.0	.0001	-0.1	.31			0.2	.31
DPP: Inappropriate Practices	.08	1.6	.22	1.5	.004	0.1	.10			-0.1	.51
Arnett: Teacher Warmth	.01	0.2	.82	34.6	.0001	0.1	.85			-0.8	.55
Arnett: Teacher Harshness	.01	0.1	.92	8.0	.002	0.1	.70			0.03	.98

CHAPTER SEVEN

CONCLUSIONS

The study's findings have implications for future research in preschool settings as well as for practitioners in the field of early childhood. Below we first discuss the methodological and research implications of the study's findings and then the implications for early childhood practice.

Implications for Research

This study provided the opportunity to observe multiple aspects of the quality of the experience in settings serving disadvantaged four-year-olds. Typically, studies of early childhood assess quality using a global rating scale. We were able to use this type of scale together with three observation systems that recorded detailed information on a time-sampled basis. Our assessment of the usefulness of the different measures yielded the following results:

1. The three global classroom rating scales provide very similar information. The scores on the ECERS, the Assessment Profile, and the DPP were highly correlated and related in similar ways to program and classroom characteristics. In addition, psychometric properties of all three were acceptable. Therefore using all three scales is redundant.

2. The global ratings do not address the important qualities of teacher affect and emotional style. The Arnett caregiver rating provided complementary but different information from the classroom rating scales. One component, teacher responsiveness, was one of the more sensitive variables in terms of its association with other classroom and staff background variables.

3. For future research, the global ratings would be more valuable if criteria of quality could be developed to "calibrate" the scores obtained on classrooms. The ECERS comes closest to having such criteria, because of the labels given to

individual scale scores ("Inadequate", "Good", "Excellent"). However, even the ECERS would be more useful for policy research if points on the scale could be defined as "acceptable" or "high."

4. The advantage of the micro-observations over the global rating scales is that the micro-observations provide a detailed picture of the early childhood setting from the child's point of view as well as information about processes in the classroom. The various measures of quality used in this study have different strengths and weaknesses. The global ratings have been widely used in a number of earlier research studies. They include many aspects of the classroom environment that are specified in standards and in descriptions of good educational practice. Some focus heavily on physical and organizational aspects of the classroom. It is not possible to capture dynamic classroom processes in any detail with any of them, nor is it easy to determine where inadequacy lies - whether it is in the type and amount of equipment, its use or the teacher's behavior, since all three can be packed into a single item.

   The quality measures derived from the micro-observations, on the other hand, represent an effort to move measurement of quality in a new direction. The micro-observations allowed us to characterize the classroom experience in some detail, including how adults and children spent their time, their activities and groupings, how the teacher's attention was distributed among children, the kinds of teaching strategies used, and the ways in which children behave with adults, with peers, and on their own. These measures, while relatively untested, are more discrete and more directly tied to classroom process.

5. The advantages of the global ratings lie in their reliability and their use in previous research, which allows comparisons with other samples. The regression model was more powerful in predicting variance in the global ratings than in the micro-observation measures. One possible reason is that the global ratings are more reliable, i.e., have less "noise".

6. The global ratings may be more useful for studying differences at the lower end of the quality spectrum than at the upper end. The global ratings may be helpful in identifying areas where a classroom is not acceptable, in terms of equipment, scheduling, etc. However, it is not clear that the instruments address concerns about providing very high quality early childhood environments.

7. Certain aspects of children's preschool experience that are not carefully measured in the global ratings. These include the extent of individualization of activities; the extent to which children choose and direct their own activities; the extent to which staff balance involvement and interaction with children, with observation of the child in his/her own tasks without active intervention.

8. The micro-observations, as they were used in the current study, must be connected to theories of what constitutes quality environments. At the same time, although the micro-observations provide the bases for examining processes such as those described above, work has to be done to establish benchmarks for attributive evaluative labels such as "high" or "moderate" quality.

Implications for Practice

The first general conclusions that can be drawn from the findings is that, in many ways, these early childhood programs looked remarkably similar, regardless of their sponsorship. In addition, for the most part, the programs in the study maintained a level of quality that can be characterized as adequate. At the same time, the findings from this sample of programs suggest many ways in which early childhood practice needs to be improved.

Below we discuss the implications for practice of the study's findings on children's activities and groupings; teachers' and aides' use of time; interactions between adults and children in the classroom; and children's behavior.

Children's Activities

It is encouraging that programs included a wide variety of activities in the daily curriculum and, that children spent, on average, substantial portions of time in goal-directed and exploration activities. However, in a significant number of classrooms, some activities that we would expect to be included in the daily curriculum, such as math or language, science and the natural world, and story reading or looking books, did not occur on a daily basis. In good early childhood classrooms, activities that enhance the child's language and increase his or her motivation to learn occur daily.

Child Groupings

Children spent close to half of their time in small groups or working alone, but there was substantial variation across classrooms in the pattern of child groupings. In twenty percent of the classrooms, children spent most of their time in a single large group, leaving little time for small-group or individual activities. This is of particular concern because, while interesting things can happen in the large group, it does not lend itself to the "rich play" that includes activities with a goal, art or music, and exploratory activities such as dramatic or fantasy play. In addition to providing opportunities for "rich play," the small group offers children opportunities to choose among activities and work together without direction by an adult. Large groups, by their very nature, need the supervision and direction of an adult to move the activity along.

Teachers' and Aides' Use of Time

While staff in these classrooms spent most of their time actively involved with children, the largest proportion of this time was spent with the group as a whole. In spite of the emphasis that early childhood educators place on attention to the individual child's needs, both teachers and aides spent little time in interactions with individual children. An additional concern is the 12 percent of all classrooms in which more than half of the children received no individual attention over the course of the two observation periods.

Interactions Between Staff and Children

When we look closely at the interactions between teachers and aides and children, clear differences in roles and strategies emerge. Teachers spent more time in teaching, aides spent more time in organizing the classroom and managing children's behavior. While both teachers and aides used many positive verbal techniques in their interactions with children, teachers were much more likely to use explanations and questions or to give praise. Aides, as they organized children's behavior tended to use direct commands more. These differences probably reflect initial differences in background and training that become more pronounced because of the different roles that staff play in the early childhood classroom. The result is often that only one of the two adults in the classroom is "teaching."

Children's Behavior

Although the development of the whole child, including social-emotional as well as intellectual competence, has been articulated as the goal of most early childhood programs, agreed upon definitions and measures are largely lacking. In this study, we conducted child-focused observations to try to capture the qualities of children's behavior with adults, with peers and alone. We identified two aspects of children's behavior some researchers have found to be related to later school success: engagement in activities with goals; and the use of higher order social strategies. The study provided us with some clues about the environments and activities that promoted these two types of behavior. In classrooms with more highly educated and trained teachers, children spent more time engaged in activities with goals. This suggests that more highly trained teachers are able to structure the environment so that children easily find activities that interest and engage them.

A different picture emerges when we look at children's use of higher-order social strategies (i.e., the extent to which they initiate and organize activities, or work together on a task or share resources and ideas). These behaviors emerge most strongly in the context of exploratory play, with peers. To support and encourage these behaviors, sufficient time needs to be set aside for dramatic and fantasy play, as well as other exploratory activities in which children in small groups, without the constraint of an adult presence, can mutually organize and

cooperate. This means that the teacher must provide the opportunity for the activity and then let the children take charge of it.

We began this discussion by pointing out that these early childhood settings resembled one another in many ways and generally provided an adequate early childhood experience. There were relatively small variations in quality among the settings and only a small number of programs were rated as being of low quality. The range of variation in regulatable program characteristics such as child-staff ratio was also relatively narrow. On the other hand, none of the programs we studied were rated as excellent. These two findings, taken together, suggest the possibility that while regulating program characteristics can ensure adequate care, it does not necessarily produce the high quality experience that we would want for all children.

We were unable to test the hypothesis that radically higher standards for ratio, group size or teacher qualifications would result in dramatically higher quality classrooms. A more feasible approach to raising the quality of the early childhood environment would be to alert early childhood staff, through training, to the more subtle aspects of the child's experience that contribute to quality. These would include: true individualization of the educational program; emphasis on child-directed learning; easing the rigidity of classroom staff roles; and encouraging children to develop and use higher-level social strategies. Future research should examine whether training that focuses on the kinds of teacher behaviors highlighted in this study can succeed in producing high-quality classroom environments.

There is an increasingly shared belief in the importance of the early childhood experience in the child's later functioning and success in school. In the last twenty years we have moved toward agreement on what kinds of early childhood experiences will best promote good development. These shared beliefs have been influential in placing a floor on the quality of the early childhood setting for poor children. The task that remains is to move beyond the present "acceptable" level of quality to the high-quality environment that we believe has the power to change children's lives.

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APPENDIX A

SUPPORTING TABLES

Exhibit A.1

Number and Percentage of Programs by Length of Program Day and Type of Program

Length of Day	Type of Program							
	Child Care Centers		Head Start Programs		School-Sponsored Programs		All Program Types	
	N	%	N	%	N	%	N	%
Half-Day	5	11.9	23	58.9	22	57.9	50	42.0
Extended-Day	6	14.2	12	30.7	11	28.9	29	24.3
Full-Day	31	73.8	4	10.2	5	13.2	40	33.6
Total	42	35.2	39	32.7	38	31.9	119	100.0

Source: Director Interview

Exhibit A.2

Percentage of Programs Providing Extended Child Care by Type of Program

	Type of Program			
Type of Extended Care	Child Care Centers (n=41)	Head Start Programs (n=39)	School-Sponsored Programs (n=37)	All Program Types (n=117)
Both before and after-school programs	22.0%	2.6%	16.2%	13.7%
Before-school program only	0.0	0.0	13.5	4.3
After-school program only	26.8	5.1	13.5	15.4
No extended care	51.2	92.3	56.8	66.7

Source: Director Interview

Exhibit A.3

Percentage of Programs by Length of Operation and Type of Program

Years in Operation	Type of Program			
	Child Care Centers (n=42)	Head Start Programs (n=39)	School-Sponsored Programs (n=38)	All Program Types (n=119)
1 year or less	9.8%	5.4%	0.0%	5.3%
2-5 years	12.2	21.6	36.1	22.8
6-10 years	17.1	10.8	22.2	16.6
11-20 years	24.4	48.6	30.6	34.2
21+ years	36.6	13.5	11.1	21.1
Average number of years	23.4	12.2	13.8	16.7
(Standard Dev.)	(25.6)	(7.3)	(18.1)	(19.4)
Median number of years	16.0	12.0	9.5	12.0

Source: Director Interview

Exhibit A.4

Mean Percentage of Children by Ethnic Groups and Type of Program

Ethnicity	Type of Program								Between Group Difference	
	Child Care Centers (n=41)		Head Start Programs (n=39)		School-Sponsored Programs (n=37)		All Program Types (n=117)			
	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	F	signif.
White, non-Hispanic	14.9%	(22)	27.1%	(37)	48.0%	(35)	29.3%	(34)	10.7[a]	.0001
Black, non-Hispanic	50.9	(40)	47.4	(39)	21.2	(26)	40.5	(40)	7.6[b]	.008
Hispanic	26.9	(35)	19.9	(32)	25.5	(33)	24.1	(33)	0.5	.61
Asian	4.2	(13)	5.4	(22)	2.4	(10)	4.1	(16)	0.3	.71
Other	3.1	(12)	1.6	(04)	2.7	(05)	2.0	(08)	1.5	.22

[a]School programs significantly higher than Head Start or child care centers.
[b]School programs significantly lower than Head Start or child care centers.

Source: Director Interview

Exhibit A.5

Percentage of Working Mothers by Type of Program

Child Care Centers (n=42)		Head Start Programs (n=39)		School-Sponsored Programs (n=38)		All Program Types (n=119)		Between Group Difference	
$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	F	signif.
67.0%	(32.1)	38.9%	(33.3)	43.4%	(26.9)	50.2%	(33.2)	9.7[a]	.0001

[a]Child care centers significantly higher than Head Start and school-sponsored.

Source: Director Interview

Exhibit A.6

Percentage of Programs by Ages of Children Served and Type of Program

Age of Children	Type of Program: Child Care Centers (n=42)	Head Start Programs (n=39)	School-Sponsored Programs (n=38)	All Program Types (n=119)
Infants less than 1 year	27.5%	0.0%	0.0%	9.6%
1 year olds	30.0	0.0	0.0	10.5
2 year olds	75.0	0.0	2.9	27.2
3 year olds	100.0	74.4	31.4	70.2
4 year olds	100.0	100.0	100.0	100.0
5 year olds	100.0	71.8	51.4	75.4

Source: Director Interview

Exhibit A.7

Length of Program Operation by Type of Program

Years in Operation	Proportion of Programs			
	Child Care Centers (n=42)	Head Start Programs (n=39)	School-Sponsored Programs (n=38)	All Types (n=119)
1 year or less	9.8%	5.4%	.0%	5.3%
2-5 years	12.2	21.6	36.1	22.8
6-10 years	17.1	10.8	22.2	16.6
11-20 years	24.4	48.6	30.6	34.2
21+ years	36.6	13.5	11.1	21.1
Average number of years	23.4	12.2	13.8	16.7
(Standard dev.)	(25.6)	(7.3)	(18.1)	(19.4)
Median number of years	16.0	12.0	9.5	12.0

Source: Director Interview

Exhibit A.8

Percentage of Programs by Program Goal[a] and Type of Program

Program Goal	Type of Program				Between Group Difference	
	Child Care Centers (n=41)	Head Start Programs (n=38)	School-Sponsored Programs (n=35)	All Program Types (n=114)	Chi-Square	signif.
Warm, loving environment	100.0%	100.0%	100.0%	100.0%	-	
Care while parents work	92.7	51.3	37.1	61.7	27.4	.0001
Prepare child for school	92.5	92.3	100.0	94.7	2.8	.25
Provide compensatory educ.	85.0	97.4	85.7	89.5	4.0	.21
Promote children's dev.	100.0	100.0	100.0	100.0	-	
Appreciation for child's culture	92.7	89.7	77.1	87.0	4.4	.11
Provide religious instruction	12.2	0	0	4.4	6.4	.04

[a]Program directors could select up to 7 goals

Source: Director Interview

Exhibit A.9

Percentage of Programs by Type and Level of Parent Involvement and Program Type

Type of Parent Involvement	Type of Program												Between Group Difference	
	Child Care Centers (n=42)			Head Start Programs (n=39)			School-sponsored Programs (n=38)			All Program Types (n=119)				
	No Parents	Up to Half	Most Parents	No Parents	Up to Half	Most Parents	No Parents	Up to Half	Most Parents	No Parents	Up to Half	Most Parents	Chi-square	signif.
Volunteer in the classroom	43.9%	53.7%	2.4%	2.6%	69.2%	28.2%	18.4%	76.3%	5.3%	22.0%	66.1%	11.9%	30.7	.0001
Volunteer on field trips	20.5	74.4	5.1	0.0	51.3	48.7	13.2	63.2	23.7	11.2	62.9	25.9	23.6	.0001
Make materials	54.8	45.2	0.0	10.3	69.2	20.5	39.5	55.3	5.3	35.3	56.3	8.4	24.5	.0001
Share skills	48.8	48.8	2.4	17.9	61.5	20.5	44.7	50.0	5.3	37.3	53.4	9.3	14.7	.005
Attend parent/ teacher conferences	14.6	36.6	48.8	2.6	15.8	81.6	21.6	21.6	56.8	12.9	25.0	62.1	12.7	.01
Attend social events	32.5	32.5	35.0	7.9	36.8	55.3	19.4	61.1	19.4	20.2	43.0	36.8	16.5	.002
Recruit families for the program	48.8	41.5	9.8	23.7	55.3	21.1	64.9	32.4	2.7	45.7	43.1	11.2	15.1	.004

Source: Teacher Interview

Exhibit A.10

Percentage of Programs by Type of Supportive Services Offered to Families and Type of Program

Type of Service	Type of Program				Between Group Difference	
	Child Care Centers (n=41)	Head Start Programs (n=39)	School-Sponsored Programs (n=37)	All Program Types (n=117)	Chi-square	signif.
Physical exams	22.5%	79.5%	30.6%	44.3%	30.0	.0001
Dental exams	37.5	84.6	44.4	55.7	20.4	.0001
Hearing, speech, vision testing	80.0	100.0	94.4	91.3	10.6	.005
Psychological testing	40.0	89.7	77.8	68.7	24.7	.0001
Testing for cognitive development	65.9	97.4	83.3	81.7	13.2	.001
Testing for social development	58.5	94.7	58.3	70.4	16.1	.0003
	$\bar{x}$ (s.d.)	$\bar{x}$ (s.d.)	$\bar{x}$ (s.d.)	$\bar{x}$ (s.d.)	F	signif.
Average number of services offered (0-6)	3.0 (1.8)	5.4 (.94)	3.8 (1.5)	4.1 (1.8)	28.3[a]	.0000

[a]Head Start significantly higher than child care centers and school-sponsored programs; school-sponsored programs significantly higher than child care centers.

Source: Director Interview

Exhibit A.11

Percentage of Programs Offering Fringe Benefits for Staff by Type of Program

Type of Benefit	Type of Program				Between Group Difference	
	Child Care Centers (n=42)	Head Start Programs (n=39)	School-Sponsored Programs (n=38)	All Program Types (n=119)	Chi-square	signif.
Reduced fee for own children	53.8%	18.9%[a]	2.8%	25.9%	26.8	.0001
Stipend for workshops, conferences	92.7	89.7	58.3	81.0	17.6	.0002
Retirement, pension plan	47.5	69.2	97.1	70.2	22.0	.0001
Life insurance	47.5	79.5	62.9	63.2	8.7	.01
Health insurance	87.5	89.7	82.9	86.8	0.8	.67
Paid sick leave	92.7	94.9	97.1	94.8	0.8	.68
Paid vacation	92.7	59.0	34.3	63.5	28.3	.0001
Paid maternity leave	24.3	35.9	28.6	29.7	1.3	.53

[a]Head Start programs do not accept fees for the children they serve, but are allowed to serve a small proportion of children whose family incomes would otherwise make them ineligible.

Source: Director Interview

Exhibit A.12

Staff Turnover by Type of Program

	Type of Program									
	Child Care Centers (n=42)		Head Start Programs (n=39)		School-Sponsored Programs (n=38)		All Program Types (n=119)		Between Group Difference	
Staff Type	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	F	signif.
Percentage of **teachers** who left program in last 12 months	12.4%	(24)	32.8%	(50)	6.3%	(13)	17.4%	(33)	2.2	.12
Percentage of **assistant teachers** who left in last 12 months	23.6	(38)	13.2	(33)	11.8	(21)	16.3	(32)	1.5	.23

Source: Director Interview

Exhibit A.13

Use of Volunteers in Program by Type of Program

Use of Volunteers	Type of Program								Between Group Difference	
	Child Care Centers (n=42)		Head Start Programs (n=39)		School-Sponsored Programs (n=38)		All Program Types (n=119)			
	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	chi-square	signif.
Number of volunteers	3.3	(5.1)	28.7	(39.7)	8.6	(22.0)	13.8	(28.6)	10.1[a]	.0001
Programs with any volunteers	68.3%	(49.1)	92.3%	(27.0)	53.3%	(50.2)	68.4%	(46.7)	21.1[a]	.0001
Hours volunteers work:									14.4	0.3
Less than five hours/week	28.0%		57.6%		62.5%		48.6%			
5-10 hours/week	20.0		24.2		31.3		24.3			
11-20 hours/week	44.0		15.2		0		21.6			
More than 20 hours/week	8.0		3.0		6.3		5.4			

[a]Head Start significantly higher than child care centers and school programs.

Source: Director Interview

Exhibit A.14

Percentage of Lead Teachers by Highest Diploma/Degree and Type of Program

Highest Degree	Type of Program			
	Child Care Centers (n=42)	Head Start Programs (n=39)	School-Sponsored Programs (n=38)	All Program Types (n=119)
GED/HS Diploma	40.5%	10.3%	0.0%	17.6%
Assoc. of Arts	21.4	10.3	0.0	10.9
CDA	2.4	35.9	0.0	12.6
Voc.-Tech.	9.5	0.0	0.0	3.4
BS/BA	23.8	38.5	60.5	40.3
Masters	2.4	5.1	34.2	13.4
Ph.D., Ed.D., M.D.	0.0	0.0	5.3	1.7

Source: Teacher Interview

Exhibit A.15

Percentage of Assistant Teachers/Aides by Highest Diploma/Degree Earned and Type of Program

Highest Degree	Type of Program (Percent of Assistant Teachers)			
	Child Care Centers (n=46)	Head Start Programs (n=45)	School-Sponsored Programs (n=39)	All Program Types (n=130)
GED/HS Diploma	60.0%	57.8%	63.2%	60.2%
Assoc. of Arts	7.5	13.3	7.9	9.8
CDA	7.5	22.2	0.0	10.6
Voc.-Tech.	7.5	6.7	10.5	8.1
BS/BA	15.0	0.0	18.4	10.6
Masters	2.5	0.0	0.0	0.8
Ph.D., Ed.D., M.D.	0.0	0.0	0.0	0.0

Source: Teacher Interview

Exhibit A.16

Percentage of Classroom Staff with Early Childhood Certification and Training by Type of Staff and Type of Program

Type of Training/Certification and Type of Staff	Type of Program				Between Group Difference	
	Child Care Centers	Head Start Program	School-sponsored Programs	All Program Types	F	signif.
Any Early Childhood Training						
Lead teachers (n=119)	97.6%	100.0%	94.7%	97.5%*	1.11	.34
Assistant teachers/aides (n=130)	89.1	95.6	76.9	87.7	3.5[a]	.03
Any Early Childhood Training in Last Year						
Lead teachers	90.5	94.9	79.0	88.2	2.6	.08
Assistant teachers/aides	89.1	86.7	59.8	79.2	7.6[b]	.0007
Child-Related Specialization						
Lead teachers	61.9	97.4	79.0	79.0*	8.6[c]	.0003
Assistant teachers/aides	26.1	51.1	30.8	36.2	3.5[d]	.03
CDA Certificate						
Lead teachers	11.9	64.1	15.8	30.3*	21.0[e]	.0001
Assistant teachers/aides	10.9	37.8	2.6	17.7	11.6[e]	.0001
State ECE Certification/License/ Endorsement						
Lead teachers	35.7	38.5	76.3	49.6*	90.0[e]	.0002
Assistant teachers/aides	15.2	6.7	15.4	12.3	1.0	.37

(continued)

Exhibit A.16

Percentage of Classroom Staff with Early Childhood Certification and Training by Type of Staff and Type of Program

Type of Training/Certification and Type of Staff	Type of Program				Between Group Difference	
	Child Care Centers	Head Start Program	School-sponsored Programs	All Program Types	F	signif.
Any Early Childhood Training						
State Elementary Education Certification						
Lead teachers	19.1%	25.6%	7.0%	40.3%*	24.1[e]	.0001
Assistant teachers/aides	2.2	0	7.7	3.1	2.2	.12
State Secondary Education Certification						
Lead teachers	4.8	2.6	15.8	7.6*	2.8	.06
Assistant teachers/aides	0	0	2.6	0.8	1.2	.31
State Special Education Certification						
Lead teachers	4.8	2.6	5.3	4.2	0.2	.82
Assistant teachers/aides	2.1	0	0	0.8	0.9	.40
Any License/Certification Credential						
Lead teachers	76.2	89.7	97.4	87.4*	4.4[a]	.01
Assistant teachers/aides	59.7	64.4	48.7	57.7	1.1	.35

*Lead teachers significantly different than assistant teachers/aides.
[a]Head Start staff significantly higher than staff in school-sponsored programs.
[b]Head Start and child care center staff significantly higher than staff in school programs.
[c]Head Start staff significantly higher than staff in child care centers or school programs.
[d]Head Start staff significantly higher than staff in child care centers.
[e]School program staff significantly higher than staff in Head Start or child care centers.

Source: Director Interview

Exhibit A.17

Percentage of Classrooms by Primary Focus of Curriculum and Type of Program

Primary Focus of Curriculum	Type of Program				Between Group Differences	
	Child Care Centers (n=42)	Head Start Programs (n=39)	School-Sponsored Programs (n=38)	All Types (n=119)	chi-square	signif.
Intellectual development	16.7%	10.3%	10.5%	12.6%	1.0	.61
Social development/self-esteem	16.7	23.1	21.1	20.2	0.5	.76
Both intellectual and social development	64.3	61.5	68.4	64.7	0.4	.82
Other	2.4	5.1	0	2.5	2.1	.36

Source: Teacher Interview

Exhibit A.18

Average Scores for Teachers on Beliefs about Developmentally Appropriate Practices by Type of Program

Teacher Beliefs[a]	Type of Program									
	Child Care Centers (n=42)		Head Start Programs (n=39)		School-Sponsored Programs (n=38)		All Program Types (n=119)		Between Group Difference	
	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	F	signif.
Overall Average for Inappropriate Behaviors	2.8	(1.03)	2.3	(0.74)	2.1	(0.71)	2.4	(0.89)	5.7[d]	0.005
Large group instruction should be used most of the time	2.6	(1.27)	2.5	(1.13)	1.8	(0.91)	2.3	(1.16)	5.1[e]	0.007
Teachers should tell children what they will do and when	3.0	(1.50)	2.5	(1.24)	2.3	(1.15)	2.6	(1.33)	2.9	0.06
Children should be expected to be quiet and listen for major periods of time	1.9	(1.27)	1.4	(0.75)	1.6	(0.98)	1.7	(1.05)	1.8	0.18
Children should use workbooks and worksheets	1.9	(1.35)	1.1	(0.44)	1.4	(0.71)	1.5	(0.99)	6.2[d]	0.003
Reading instruction should focus on letter recognition, alphabet, drawing letters	2.9	(1.62)	2.1	(1.30)	1.6	(0.80)	2.2	(1.39)	9.8[f]	0.0001
Children should have lessons in small motor activities like using scissors, coloring forms	4.2	(1.31)	3.8	(1.50)	3.7	(1.33)	3.9	(1.38)	1.5	0.23
Memorization and drill are important ways for children to learn	2.8	(1.71)	2.1	(1.33)	1.8	(1.25)	2.3	(1.51)	4.6[g]	0.01
Teachers should encourage participation by requiring it and giving rewards	2.8	(1.68)	2.6	(1.52)	2.6	(1.30)	2.7	(1.50)	0.3	0.78
Most lessons should be teacher-directed	2.8	(1.46)	2.1	(1.37)	2.4	(1.32)	2.5	(1.40)	2.1	0.13
Teachers should settle most disagreements among children	2.8	(1.51)	2.5	(1.33)	2.2	(1.07)	2.5	(1.34)	2.5	0.08
Teachers should deal with misbehavior by having child sit and be quiet	2.8	(1.50)	2.5	(1.33)	2.3	(1.03)	2.6	(1.31)	1.5	0.22

Exhibit A.18

Average Scores for Teachers on Beliefs about Developmentally Appropriate Practices by Type of Program

Teacher Beliefs[a]	Type of Program									
	Child Care Centers (n=42)		Head Start Programs (n=39)		School-Sponsored Programs (n=38)		All Program Types (n=119)		Between Group Difference	
	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	F	signif.
Overall Average for Appropriate Behaviors	4.5	(0.39)	4.6	(0.30)	4.4	(0.47)	4.5	(0.40)	1.7	0.19
Children should select their own activities	4.1	(1.13)	4.8	(0.57)	4.1	(1.04)	4.3	(1.00)	5.2[b]	0.007
Children should have a variety of activities to choose among	4.9	(0.30)	5.0	(0.17)	4.8	(0.57)	4.9	(0.39)	1.6	0.25
Different children should be doing different things most of the time	4.0	(1.01)	4.3	(0.75)	4.0	(0.99)	4.1	(0.93)	1.1	.33
Materials in the classroom should be closely related to child's experience	4.6	(0.66)	4.1	(0.96)	4.5	(0.69)	4.5	(0.79)	4.2[c]	0.02
Teacher should ask questions that have more than one right answer	4.7	(0.56)	4.9	(0.41)	4.8	(0.48)	4.8	(0.50)	1.4	0.25
Children should work on own or in small child-chosen groups most of the time	4.1	(1.02)	4.2	(1.02)	4.1	(1.14)	4.1	(1.06)	0.4	0.79
Math, science should be taught through blocks, cooking, woodworking	4.7	(0.79)	4.9	(0.41)	4.8	(0.44)	4.8	(0.59)	1.5	0.23
Teachers should interact with children by asking questions, offering suggestions	4.7	(0.61)	4.6	(0.89)	4.4	(1.09)	4.6	(0.88)	0.7	0.49

[a]Based on Description of Preschool Practices; item and subtotals range from 1 ("Doesn't match my philosophy at all") to 5 ("Matches my philosophy very well").
[b]Head Start teachers agree significantly more with app. statement than teachers in child care centers and school programs.
[c]Teachers in child care centers and school programs agree significantly more with app. statement than do Head Start teachers.
[d]Teachers in school and Head Start programs disagree significantly more with inapp. statements than do teachers in child care centers.
[e]Teachers in school programs disagree significantly more with inapp. statement than do teachers in child care centers and Head Start programs.
[f]Head Start teachers disagree significantly more with inapp. statement than do teachers in child care centers.
[g]Teachers in school programs disagree significantly more with inapp. statement than do teachers in child care centers.

(continued)

Exhibit A.19

Classroom Structure by Type of Program

Classroom Structure	Type of Program									
	Child Care Centers (n=42)		Head Start Programs (n=39)		School-Sponsored Programs (n=38)		All Program Types (n=119)		Between Group Difference	
	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	F	signif.
Number of children enrolled	20.7	(6.3)	19.9	(4.2)	19.6	(5.6)	20.1	(5.4)	0.4	.70
Number of children present	17.2	(5.7)	15.7	(4.1)	16.2	(3.2)	16.4	(4.5)	1.2	.30
Number of staff	2.1	(0.6)	2.1	(0.5)	1.9	(0.4)	2.0	(0.5)	2.1	.12
Number of teachers	1.2	(0.3)	1.0	(0.3)	1.0	(0.1)	1.1	(0.3)	4.0[a]	.02
Number of aides	0.9	(0.5)	1.1	(0.4)	0.9	(0.3)	0.9	(0.4)	2.5	.09
Number of volunteers	0.2	(0.4)	0.5	(0.8)	0.4	(0.6)	0.4	(0.6)	3.0[b]	.05
Child/staff ratio	9.1	(2.8)	7.8	(1.7)	9.2	(2.2)	8.7	(2.3)	4.6[c]	.01

[a]Child care centers significantly higher than school programs.
[b]Head Start significantly higher than child care centers.
[c]Head Start significantly lower than child care centers or school-sponsored programs

Source: Classroom Snapshot (over five days)

Exhibit A.20

Percentage of Time Classroom Was Supervised by One Staff Person by Type of Program

Supervision by One Adult Only	Type of Program			
	Child Care Centers (n=42)	Head Start Programs (n=39)	School-Sponsored Programs (n=38)	All Types (n=119)
Never (0% of time)	16.7%	41.0%	10.5%	22.7%
Rarely (1-10% of time)	21.4	23.1	34.2	26.0
11-25% of time	21.4	12.8	29.0	21.0
26-50% of time	19.1	20.5	13.1	17.7
51-75% of time	14.3	0.0	5.2	6.7
76-90% of time	2.4	0.0	0.0	0.9
Nearly always (91-99% of time)	0.0	0.0	0.0	0.0
Always (100% of time)	4.8	2.6	7.9	5.0
Average percent of time (s.d.)	27.5% (29.8)	13.5% (20.4)	21.3% (26.9)	20.9% (26.5)
Median percent of time	16.7%	3.9%	15.5%	12.1%

Source: Classroom Snapshot (over five days)

Exhibit A.21

Percentage of Programs by Child/Staff Ratio and Type of Program

Child to Staff Ratio	Type of Programs			
	Child Care Centers (n=42)	Head Start Programs (n=39)	School-Sponsored Programs (n=38)	All Types (n=119)
7:1 and lower	19.0%	28.2%	23.7%	23.5%
7.01:1 - 8:1	23.9	35.9	13.1	24.4
8.01:1 - 9:1	11.9	12.8	10.6	11.8
9.01:1 - 10:1	11.9	12.8	15.8	13.4
10:01:1 - 11:1	7.1	5.2	13.1	8.4
11.01:1 - 12:1	9.5	5.1	7.9	7.6
12.01:1 - 13:1	4.8	0.0	13.2	5.9
13:01:1 - 14:1	4.8	0.0	2.6	2.5
14.01:1 - 15:1	2.4	0.0	0.0	1.7
15:1 and higher	2.4	0.0	0.0	0.8

Source: Classroom Snapshot (over 5 days)

Exhibit A.22

Percentage of Children with Different Risk Factors by Type of Program (n = 119 programs)

Risk Factors	Type of Program: Child Care Centers (n = 42)		Head Start Programs (n = 39)		School-Sponsored Programs (n = 38)		All Program Types (n = 119)		Between Group Difference	
	x̄	(s.d.)	x̄	(s.d.)	x̄	(s.d.)	x̄	(s.d.)	F	signif.
First language not English	29.7%	(34)	17.3%	(29)	28.6%	(32)	25.3%	(32)	1.8	.16
Migrant family	2.8	(10)	5.1	(19)	0.2	(01)	2.7	(12)	1.5	.23
Living apart from birth mother	7.3	(10)	6.7	(11)	2.7	(05)	5.6	(09)	2.8	.06
Physical handicap	1.1	(03)	3.2	(05)	1.4	(03)	1.9	(04)	3.6[b]	.03
Diagnosed developmental delay	3.6	(08)	5.2	(07)	7.1	(22)	5.2	(14)	0.7	.51
Undiagnosed developmental delay	6.4	(11)	5.5	(09)	7.2	(11)	6.4	(11)	0.3	.78
Substance-abusing parent	6.6	(10)	8.2	(17)	4.8	(10)	6.5	(13)	0.6	.52
Homeless family	0.2	(01)	0.2	(01)	0.1	(01)	0.2	(01)	0.1	.93
Father absent	36.7	(29)	45.4	(30)	27.7	(23)	36.7	(28)	4.0[c]	.02
Recent immigrant	3.3	(08)	3.7	(15)	4.7	(13)	3.9	(12)	.13	.88
Total incidence of risk factors[a]	.97	(59)	1.00	(66)	.85	(54)	.94	(59)	.77	.47

[a]Computed by summing incidences of 10 factors; score ranges from 0 (no child has any risk factor) to 10 (all children have all factors).
[b]Head Start programs significantly higher than child care centers.
[c]Head Start programs significantly higher than school programs.

Source: Teacher Interview

Exhibit A.23

Percentage of Classrooms by Incidence of Child Risk Factors (n=119 programs)

Risk Factor		Percent of Classrooms				
	0 Percent of Children with Factor	0 to 10 Percent of Children with Factor	11 to 25 Percent of Children with Factor	26 to 50 Percent of Children with Factor	51 to 75 Percent of Children with Factor	76 to 100 Percent of Children with Factor
First language not English	32.8%	19.3%	12.6%	17.7%	4.2%	13.4%
Recent immigrant	89.9	4.2	2.5	1.1	1.7	0.8
Migrant family	74.8	13.4	9.3	0.0	0.8	0.8
Child living apart from birth mother	51.3	27.7	18.5	1.7	0.8	0.0
Physical handicap	76.5	17.6	5.9	0.0	0.0	0.0
Diagnosed developmental delay	67.2	16.0	12.6	2.5	0.0	1.7
Undiagnosed developmental problem	52.9	23.6	19.3	3.4	0.8	0.0
Substance-abusing parent(s)	57.1	21.1	16.8	4.2	0.0	0.8
Homeless	97.5	2.5	0.0	0.0	0.0	0.0
Father absent from home	6.7	12.6	24.4	30.2	12.7	13.4

Source: Teacher Interview

Exhibit A.24

Average Scores on Items Related to Cultural Sensitivity in Classrooms by Type of Program

Items from Global Quality Ratings	Type of Program: Child Care Centers (n=42) $\bar{x}$	(s.d.)	Head Start Programs (n=39) $\bar{x}$	(s.d.)	School-Sponsored Programs (n=38) $\bar{x}$	(s.d.)	All Program Types (n=119) $\bar{x}$	(s.d.)	Between Group Difference F	signif.
ECERS: (Item #31): Cultural Awareness	2.9	(1.5)	3.6	(1.4)	3.1	(1.5)	3.1	(1.5)	2.2	.11
Assessment Profile: Subtotal for materials that encourage social and cultural awareness (0-3)	1.0	(.79)	1.3	(.88)	1.1	(.99)	1.1	(.89)	0.6	.57
									Chi-square	**signif.**
At least 5 materials available that represent varying cultures and ethnic backgrounds	23.8		30.8		26.3		26.9		0.5	.78
Material available that represents men, women and minorities in a variety of roles	19.1		28.2		31.6		26.1		1.8	.41
Foods representing different cultures provided at least once a month	61.9		66.7		55.3		61.3		1.1	.59

Exhibit A.25

Mean Score on Director Leadership Qualities[a] by Type of Program

Director Leadership Qualities	Type of Program									
	Child Care Centers (n=42)		Head Start Programs (n=39)		School-sponsored Programs (n=38)		All Program Types (n=119)		Between Group Difference	
	%		%		%		%		Chi-square	signif.
Motivates staff to improve teaching, try out new methods[b]	82.9%		74.2%		97.1%		84.9%		6.8	.03
Succeeds in maintaining good relations between parents and program[b]	91.4		88.9		100.0		93.5		3.3	.20
Director Rating[c]	$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.	F	signif.
Consults with staff about program policy	3.66	1.3	3.97	1.3	4.41	0.8	3.99	1.2	4.1[d]	.02
Resolves staff conflict effectively	3.59	1.3	4.22	1.2	4.36	0.7	4.01	1.1	5.8[e]	.009
Solves administrative problems well	3.70	1.2	4.24	1.1	4.33	0.9	4.07	1.1	4.4[e]	.03
Sets appropriate goals for staff	4.10	1.2	4.38	0.9	4.45	0.8	4.30	1.0	1.3	.26
Helps staff meet program goals with support and training	3.93	1.3	4.48	0.8	4.29	0.9	4.21	1.1	2.8	.07
Shares ideas and suggestions with staff	4.12	1.1	4.21	1.2	4.55	0.7	4.28	1.0	1.7	.18
Tolerates disagreements and criticism	3.36	1.3	3.48	1.5	3.94	1.0	3.57	1.3	1.9	.15
Delegates authority appropriately	3.98	1.1	4.18	1.1	4.38	0.8	4.16	1.0	1.4	.26
Provides strong leadership	4.02	1.1	4.12	1.1	4.31	0.9	4.14	1.0	0.7	.49
Expert resource in child development	3.63	1.3	4.06	1.3	3.88	1.2	3.84	1.2	1.1	.33
Overall rating	3.80	0.8	4.04	0.9	4.21	0.5	4.01	0.8	2.8	.07

[a]As rated by lead teachers.
[b]Items answered as yes/no.
[c]Director rated on scale of 1 ("Not at all like this") to 5 ("Very much like this") on each of 10 items.
[d]Directors of child care centers rated significantly lower than directors of school-sponsored programs.
[e]Directors of child care centers rated significantly lower than directors of Head Start and school-sponsored programs.

Exhibit A.26

Direction and Significance of Relationships Among the Program Characteristics (n=119 programs)

Program Characteristics	Institutional Variables					Structural Variables			Classroom Variables			Teacher Background Variables				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Institutional Variables																
1. Child care center (0/1)		(-)***	(-)***	(+)***	(-)*			(+)*	(-)**		(+)***	(-)***	(-)***			
2. Head Start Program (0/1)			(-)***	(-)***			(-)**	(-)*	(+)***		(-)***		(+)***	(-)*		
3. School-sponsored program (0/1)				(-)***					(-)*			(+)***		(+)**		(-)*
4. Half- vs. full-day (0/1)											(+)***	(-)**	(-)**			
5. Director leadership score																
Structural Variables																
6. Number of children present							(+)***	(-)**								
7. Observed child/staff ratio								(+)***					(-)**			
8. % of time with 1 staff member									(-)*							
Classroom Variables																
9. Level of parent involvement (0-3)																
10. Incidence of child risk factors (0-10)																
11. Prop. children with working mothers																
Teacher Background Variables																
12. Level of teacher education (0-4)													(+)*	(+)***		
13. Teacher has early-child spec. (0/1)															(-)*	
14. Teacher has prev. exp. elemen. teaching (0/1)															(-)*	
15. Amount of related teaching exper. for teacher																
16. Teacher has child-related training in last year																

2-tailed significance:

* Statistically significant at the 5 percent level.

** Statistically significant at the 1 percent level.

*** Statistically significant at the 1/10th of 1 percent level.

Exhibit A.27

Mean and Median Percentage of Classroom Activities by Length of Program Day

Activity	Length of Program Day: Part-day Programs (Half- and Extended day) (n=79)			Length of Program Day: Full-day Programs (n=40)			All Programs (n=119)			Between-Group Difference	
	$\bar{x}$	(s.d.)	median	$\bar{x}$	(s.d.)	median	$\bar{x}$	(s.d.)	median	F	signif.
Arriving or departing	3.2%	(3.5)	2.3%	3.8%	(4.5)	2.3%	3.4%	(3.8)	2.3%	0.79	.38
Eating lunch or snack	8.9	(4.7)	8.4	9.6	(3.7)	8.9	9.2	(4.4)	8.8	0.50	.48
Transitional activities	17.2	(7.8)	16.5	17.4	(6.3)	17.5	17.3	(7.3)	17.0	0.01	.93
Group planning, discussion	3.9	(4.1)	3.1	1.6	(2.1)	1.0	3.1	(3.7)	2.2	11.4	.001
Math/language activities	6.2	(5.9)	5.0	4.4	(4.7)	3.4	5.6	(5.6)	4.2	3.3	.07
Science, natural world activities	3.7	(5.8)	0.1	1.6	(2.5)	0.0	3.0	(5.0)	0.0	5.2	.02
Arts, crafts	10.7	(5.3)	11.4	10.0	(4.6)	10.6	10.5	(5.1)	11.1	0.52	.47
Sewing, cooking, woodwork	0.7	(2.2)	0.0	0.0	(1.4)	0.0	0.0	(0.2)	0.0	0.13	.71
Block construction	5.2	(4.9)	5.5	6.3	(5.4)	6.7	5.6	(5.1)	5.9	1.2	.28
Sand/water	2.6	(3.7)	0.0	2.3	(4.2)	0.0	2.5	(3.9)	0.0	0.21	.65
Table games, puzzles	9.3	(5.4)	9.4	9.8	(5.3)	9.0	9.5	(5.3)	9.4	0.27	.60
Looking at pictures, picture books, slides	3.4	(4.0)	2.0	3.5	(3.1)	3.0	3.4	(3.7)	2.2	0.07	.79
Watching TV, movies	0.7	(3.4)	0.0	2.2	(5.5)	0.0	1.2	(4.3)	0.0	3.2	.08
Listening to stories	3.7	(3.6)	3.0	3.3	(4.5)	2.0	3.6	(3.9)	2.7	0.20	.65
Music lesson, moving, dancing, listening	2.6	(3.2)	1.9	2.0	(2.5)	1.0	2.4	(3.0)	1.5	1.0	.31
Dramatic fantasy play	9.3	(5.2)	8.8	6.7	(4.4)	6.9	8.4	(5.1)	7.9	6.9	.01
Active play	5.8	(5.7)	5.5	9.8	(8.0)	8.1	7.2	(6.8)	6.1	9.7	.002

Base n = total number of activities (excluding nap) during the observation period
Source: Classroom Snapshot (one full program day)

Exhibit A.28

Percentage of Classrooms with Any Occurrence of Activity (n=119 classrooms)

Type of Activity	Percentage of Classrooms
Planning, discussion	61.9%
Math/language	76.3
Science, natural world	49.2
Arts, crafts	94.9
Sewing, cooking, woodwork	12.7
Block construction	69.5
Sand/water	39.0
Table games, puzzles	90.7
Looking at pictures, picture books, slides	65.3
Watching TV/movies	16.1
Listening to stories	72.0
Music lesson, moving, dancing, listening	54.2
Dramatic/fantasy play	90.7
Active play	83.9

Base n = total number of activities observed during the observation, excluding nap

Source: Classroom Snapshot (one full program day)

Exhibit A.29

Percentage of Time Spent in Composite Activities (n=119 classrooms)

Composite Activity	Percentage of Time	
	$\bar{x}$	(s.d.)
Goal-directed (math activities, language arts, science and natural world activities, sewing, woodwork; cooking; block construction; table games; puzzles; looking at books)	31.3%	(11.5)
Art and music	12.9	(5.9)
Exploration (sand/water play; dramatic/fantasy play	10.9	(6.6)
Group activities (planning/discussion; listening to stories; lunch or snack; watching TV, movies)	13.5	(7.0)
Informal activities (active play; social interaction)	10.8	(7.7)
Routines (arriving or departing, transitional activities)	20.7	(8.2)

Source: Classroom Snapshot (one full day)

Exhibit A.30

Mean Percentage of Time by Size of Children's Groupings (n=119 classrooms)

Size of Child Group	Percentage of Time	
	$\bar{x}$	(s.d.)
One child	28.0%	(15.0)
Small group (2-6 children)	43.0	(12.8)
Large group (7+ children)	29.1	(15.4)

Source: Classroom Snapshot (one full day)

Exhibit A.31

Percentage of Composite Activities by Size of Child Group
(n=119 classrooms)

Composite Activity	Size of Child Group								
	Large (7+ children)			Small (2-6 children)			One Child		
	$\bar{x}$	(s.d.)	median	$\bar{x}$	(s.d.)	median	$\bar{x}$	(s.d.)	median
Goal-directed activities (math activities; language arts; science and natural world activities; sewing; woodwork; cooking; block construction; table games; puzzles; looking at books)	26.3%	(20.8)	22.2%	47.4%	(18.0)	50.0%	26.2%	(18.5)	25.0%
Art and music	22.4	(25.0)	15.2	52.9	(28.4)	55.3	24.7	(25.9)	22.0
Exploration (sand/water play; dramatic/fantasy play	4.5	(12.8)	0.0	68.7	(27.4)	72.7	26.9	(27.2)	20.0
Group activities (planning/discussion; listening to stories; lunch or snack; watching TV, movies)	60.7	(32.3)	69.6	31.1	(29.7)	25.0	8.2	(13.2)	0.0
Informal activities (active play; social interaction)	49.1	(34.7)	50.0	32.9	(31.0)	25.0	18.1	(20.5)	13.0
Routines (arriving or departing; transitional activities)	37.4	(27.7)	30.9	20.8	(16.0)	20.0	41.9	(26.4)	43.7

Source: Classroom Snapshot (one full program day)

Exhibit A.32

Percentage of Child Groupings by Adult Presence and Size of Child Group (n=119 classrooms)

Presence of Adult	Size of Child Group							
	Large Group (7+ children)		Small Group (2-6 children)		Individual Child		All Child Groupings	
	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)
Adult present	89.9%	(12.3)	43.3%	(22)	21.9%	(17.2)	51.1%	(15.2)
No adult present	11.1	(12.3)	56.7	(22)	78.1	(17.2)	48.9	(15.2)

Source: Classroom Snapshot (one full program day)

Exhibit A.33

Percentage of Activities by Adult Presence and Type of Activity
(n=119 classrooms)

Presence of Adult	Type of Activity[a]													
	Goal-Directed Activity		Exploratory Activity		Group Time Activity		Informal Activity		Music/Art		Routines		All Activities	
	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)
Adult present	47.8%	(23.2)	19.7%	(22.3)	76.7%	(26.1)	68.6%	(31.7)	55.3%	(28.5)	54.9%	(25.0)	51.5%	(17.8)
No adult present	52.3	(23.2)	80.3	(22.3)	23.3	(26.1)	31.4	(31.7)	44.7	(28.5)	45.1	(25.0)	48.5	(17.8)

[a]See Exhibit A 31 for definitions of activity composites.

Source: Classroom Snapshot (one full program day)

Exhibit A.34

Occurrence of Negative/Stressful Events in the Classroom
(n = 119 classrooms)

Events/Behaviors	Percentage of Snapshots in Which Event Occurred		
	$\bar{x}$	(s.d.)	median
Children not involved in any activity	9.1%	(7.9)	7.8
Children crying/in distress	9.5	(12.3)	5.7
Children fighting	8.2	(12.1)	3.6
Children being disciplined	13.1	(15.4)	8.2

Source: Classroom Snapshot

Exhibit A.35

Percentage of Time in Classroom Activities and Groupings Defined as Quality Measures (n=119 classrooms)

Quality Measures	Percentage of Time		
	$\bar{x}$	(s.d.)	median
Content of Activity			
Goal-directed activity	31.3%	(11.5)	31.0%
Exploratory activity	10.9	(6.6)	10.0
Art or music activity	12.9	(5.9)	13.0
Pattern of Child Groupings			
All children are in small group or individual activities	46.6%	(19.8)	50.0%
All children are in one group	39.9	(17.1)	38.5
Activity Mix			
Single activity for whole class	50.9%	(16.8)	51.5%
Three or more activities in class	35.9	(17.3)	33.4

Source: Classroom Snapshot (one full program day)

Exhibit A.36

Percentage of Classrooms by Amount of Time in Classroom Activities and Groupings Defined as Quality Measures (n=119 classrooms)

Quality Measures	Percentage of Time				
	0-10% of Classroom Time	11-25% of Classroom Time	26-50% of Classroom Time	51-75% of Classroom Time	76-100% of Classroom Time
Content of Activities					
Goal-directed activities	2.5%	28.9%	61.8%	6.8%	0.0%
Exploratory activities	52.5	44.1	3.4	0.0	0.0
Art or music activities	32.2	64.3	2.5	0.0	0.0
Pattern of Child Groupings					
All children are in small group or individual activities	5.9	10.2	40.7	36.4	6.8
All children are in one group	2.5	16.9	60.2	7.8	2.5
Activity Mix					
Single activity for whole class	0.8	6.8	38.6	47.1	6.7
Three or more activities in class	7.6	19.3	52.9	19.4	0.8

Source: Classroom Snapshot (one full program day)

Exhibit A.37

Percentage of Staff Time by Type of Behavior and Type of Staff

	Type of Staff						Between Group Difference	
	Lead Teachers (n=119)		Assistant Teachers/Aides (n=123)		All Staff (n=242)			
Type of Behavior	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	$\bar{x}$	(s.d.)	F	signif.
Interactions with children[a]	68.6%	(15.8)	54.0%	(18.7)	61.2%	(18.6)	42.4	.0001
Teaching	31.4	(15.3)	21.6	(16.1)	26.4	(16.4)	23.6	.0001
Management	19.6	(9.2)	16.1	(10.1)	17.8	(9.8)	8.0	.005
Playing with children	6.4	(7.5)	5.4	(5.9)	5.9	(6.7)	1.5	.23
Help/comfort	3.5	(3.4)	4.8	(5.2)	4.2	(4.5)	6.0	.01
Socializing	7.5	(5.8)	6.3	(5.5)	6.9	(5.7)	2.0	.16
Non-interaction[b]	31.4	(15.8)	46.0	(18.7)	38.8	(18.6)	42.4	.0001
Administration	16.9	(10.3)	21.7	(13.8)	19.3	(12.4)	9.3	.003
Attentive/ observing	7.3	(6.8)	13.0	(10.9)	10.2	(9.6)	24.0	.0001
Not involved	1.8	(3.2)	3.1	(6.1)	2.5	(5.0)	3.9	.05
Out of room	5.4	(6.6)	8.2	(8.1)	6.8	(7.5)	9.3	.003

[a]includes teaching, management, playing with children, help/comfort, socializing

[b]includes administration, attentive/observing, not involved, out of room

Source: Adult-Focused Interaction: Time Sample

Exhibit A.38

Percentage of Programs by the Number of Children Receiving No Individual Adult Attention[a] (n = 119 classrooms)

Children with No Individual Interaction with Adult	Percentage of Programs
None - a few children (0-10%)	8.4%
Some - a quarter of the class (11-20%)	27.7
A quarter - half of the class (26-50%)	52.2
Half - three-quarters of the class (51-75%)	10.9
Three-quarters - whole class (76-100%)	0.9

[a]Based on observations of core program day, approximately 9-11 a.m.

Source: Child-Focused Observation: Time Sample

Exhibit A.39

Percentage of Children's Interactions by Type of Interaction and Type of Activity (n = 119 classrooms)

Activity Composite	Type of Interaction								
	Interacting with Peers			Interacting with Adult(s)			Interacting with Peers and Adult(s)		
	$\bar{x}$	(s.d.)	median	$\bar{x}$	(s.d.)	median	$\bar{x}$	(s.d.)	median
Goal-directed[a]	40.0%	(21.2)	36.4%	33.8%	(22.4)	32.9%	26.1%	(15.4)	26.7%
Art and music	27.7	(22.2)	26.7	39.3	(27.4)	33.3	33.0	(25.3)	30.9
Exploration[b]	53.5	(26.2)	55.6	17.5	(21.3)	11.0	29.0	(22.9)	28.6

[a]Includes math/language; science/natural world; sewing; woodwork; cooking; block construction; table games; puzzles; looking at books

[b]Includes sand/water play; dramatic/fantasy play

Source: Child-Focused Observation: Interaction Sample

Exhibit A.40

Percentage of Children's Interactions by Size of Group (n = 119 classrooms)

Group Size	$\bar{x}$	median	(s.d.)
Child alone with adult	6.4	5.50	(5.2)
Two children	22.0%	22.2	(12.5)
Small group (3-5 children)	37.0	36.7	(14.2)
Large group (6 or more children)	17.5	14.6	(14.4)
Whole class	17.2	13.7	(13.1)

Source: Child-Focused Observation: Interaction Sample

Exhibit A.41

Percentage of Teaching/Management Interactions by Characteristics of Interactions and Type of Staff

Characteristics of Teaching/Management	Type of Staff									Between Group Difference	
	Lead Teachers (n=119)			Asst. Teachers/Aides (n=123)			All Staff (n=242)				
	$\bar{x}$	(s.d.)	median	$\bar{x}$	(s.d.)	median	$\bar{x}$	(s.d.)	median	F	signif.
Number of Children in Interaction											
One child	14.0%	(14.9)	10.0%	15.2%	(18.5)	8.2%	14.6%	(16.8)	9.4%	0.3	0.57
Small group	19.5	(14.8)	16.6	26.3	(20.2)	22.9	23.0	(18.0)	18.1	8.5	0.004
Large group	22.1	(17.0)	20.4	29.3	(25.0)	23.9	25.8	(21.7)	21.8	7.2	0.008
Whole class	44.4	(23.2)	46.8	29.2	(27.7)	22.2	36.7	(26.6)	34.9	21.8	0.000
Content of Interaction											
All Teaching Interactions	58.3%	(17.6)	59.6%	50.4%	(23.9)	51.8%	54.3%	(21.4)	56.2	6.7	0.01
Language/Reading	25.5	(16.3)	24.5	18.2	(18.3)	14.3	21.8	(17.6)	19.3	10.7	0.001
Math/Science	9.1	(13.6)	3.8	5.2	(10.3)	0.0	7.1	(12.2)	2.3	6.1	0.01
Games with rules	4.3	(6.7)	1.3	4.2	(9.1)	0.0	4.2	(8.0)	0.0	0.01	0.91
Expressive/Artistic skills	11.3	(10.4)	9.0	13.7	(18.9)	6.7	12.5	(15.3)	8.2	1.7	0.19
Developmental/Self-help skills	8.2	(7.4)	5.9	9.2	(11.7)	5.7	8.7	(9.8)	5.8	0.43	0.51
All Management Interactions	41.7%	(17.6)	40.4%	49.6%	(23.9)	48.1%	45.7%	(21.4)	43.7	6.7	0.01
Social rules	10.5	(7.8)	8.5	13.3	(13.3)	10.8	11.9	(11.0)	9.6	3.5	0.06
Classroom Organization	31.2	(16.6)	28.3	36.3	(20.9)	35.0	33.8	(19.0)	32.0	4.6	0.03

(continued)

Exhibit A.41

Percentage of Teaching/Management Interactions by Characteristics of Interactions and Type of Staff

Techniques	Type of Staff									Between Group Difference	
	Lead Teachers (n=119)			Asst. Teachers/Aides (n=123)			All Staff (n=242)				
Explain	33.0%	(15.9)	31.9%	28.7%	(19.5)	23.5%	30.8%	(17.9)	28.7%	3.5	0.06
Question	16.3	(9.4)	15.7	11.8	(9.0)	10.3	14.1	(9.4)	11.8	14.5	0.000
Sing	4.8	(5.8)	3.2	2.6	(6.2)	0.0	3.7	(6.1)	1.0	7.3	0.007
Praise	9.1	(7.1)	8.2	6.5	(7.2)	3.8	7.8	(7.3)	6.1	8.0	0.005
Command	33.7	(15.7)	33.1	46.2	(22.4)	46.8	40.0	(20.3)	39.2	25.0	0.000
Divert	0.7	(1.2)	0.0%	1.2	(2.3)	0.0	1.0	(1.9)		3.4	0.06
Restrain/remove	1.2	(2.2)	0.0	1.3	(2.7)	0.0	1.3	(2.4)		0.3	0.59
Threaten	0.9	(2.0)	0.0	1.0	(2.1)	0.0	1.0	(2.1)		0.1	0.76
Punish physically	0.3	(0.6)	0.0	0.6	(1.5)	0.0	0.4	(1.2)		4.5	0.03

Source: Adult-Focused Observation: All occurrences of teaching/management.

Exhibit A.42

Percentage of Techniques by Content of Interaction and Type of Staff

Techniques	Type of Staff: Lead Teachers (n = 119)			Type of Staff: Assistant Teachers/Aides (n = 123)			Between Group Difference	
	$\bar{x}$	(s.d.)	median	$\bar{x}$	(s.d.)	median	t-value	signif.
Teaching Interactions								
Positive (explain, question, sing, praise	85.0%	(12.2)	88.1%	75.0%	(18.0)	76.4%	5.0	0.0001
Neutral (command, divert)	14.5	(11.5)	11.9	24.7	(18.1)	23.3	-5.2	0.0001
Negative (restrain, threaten, punish)	0.5	(1.7)	0.0	0.4	(1.1)	0.0	n.a.[a]	
Management Interactions								
Positive (explain, question, sing, praise)	44.5	(20.3)	42.9	33.4	(20.8)	31.0	4.2	0.0001
Neutral (command, divert)	52.4	(19.4)	54.9	63.2	(21.0)	66.7	-4.2	0.0001
Negative (restrain, threaten, punich)	3.2	(4.7)	1.1	3.4	(6.8)	0.0	n.a.[a]	

[a]Very low frequency of negative techniques precluded testing group differences.

Source: Adult-Focused Observation: Interaction Sample.

A-44

Exhibit A.43

Percentage of Children's Time in Activities with a Goal (n=119 classrooms)

Activity	Percentage of Children's Time		
	$\bar{x}$	median	(s.d.)
Structured task	6.6%	2.6%	(8.7)
Exploring materials	33.1	32.4	(14.7)
No apparent goal	60.3	60.6	(16.0)

Source: Child-Focused Observation: Time Sample

Exhibit A.44

Percentage of Children's Time Using Different Social Strategies (n=119 classrooms)

Social Strategy	Percentage of Social Strategies		
	$\bar{x}$	median	(s.d.)
Cooperating (sharing, taking turns)	**15.2%**	**12.8%**	**(11.4)**
Organizing, planning	**7.7**	**5.0**	**(9.0)**
Initiating socialization	**57.6**	**58.7**	**(21.4)**
Giving information, instructing	**1.2**	**0.1**	**(1.8)**
Comforting, helping	**0.9**	**0.0**	**(1.5)**
Casual conversation	**10.6**	**5.8**	**(11.7)**
No strategy	**6.8**	**4.1**	**(8.3)**

Source: Child-Focused Observation: Interaction Sample

Exhibit A.45

Percentage of Children's Interactions with Higher-Level Social Strategies by Type of Activity (n = 119 classrooms)

Activity	Percentage of Higher-Level Social Strategies		
	$\bar{x}$	(s.d.)	median
Goal-directed[a]	28.7%	(23.3)	26.7%
Art and music	25.2	(23.7)	21.4
Exploration[b]	36.1	(26.6)	32.8
Group activities	11.1	(13.8)	5.2
Informal activities	32.1	(28.1)	31.5
Routines	14.7	(16.9)	8.3

[a]Includes math/language; science/natural world; sewing; woodwork; cooking; block construction; table games; puzzles; looking at books

[b]Includes sand/water play; dramatic/fantasy play

Exhibit A.46

Percentage of Core Program Time in Teacher/Child Interactions and Child Behaviors Defined as Quality Measures (n=119 classrooms)

Quality Measures	Percentage of Time		
	$\bar{x}$	(s.d.)	median
Teachers' Interactions with Children			
Teacher actively involved with children[a]	68.6%	(15.7)	71.2%
Teacher is teaching children[a]	31.4	(15.3)	30.0
Interactions in which teacher is teaching cognitive concepts[b]	34.5	(20.1)	30.7
Interactions with children in which teacher uses positive techniques[b]	63.3	(17.5)	63.2
Interactions with children in which teacher uses negative techniques[b]	2.3	(3.8)	1.0
Children in classrooms with no one-to-one adult attention	30.9%	(15.4)	28.9%
Children's Behavior			
Children engaged in activity with goal[c]	39.7	(16.0)	39.4
Children's interactions involving higher-level social strategies[d]	22.9	(15.2)	20.2

[a]Source: Adult-Focused Observation: Time Sample
[b]Source: Adult-Focused Observation: Interaction Sample
[c]Source: Child-Focused Observation: Time Sample
[d]Source: Child-Focused Observation: Interaction Sample

Exhibit A.47

Percentage of Classroom by Amount of Time in Teacher/Child Interactions and Child Behaviors Defined as Quality Measures (n=119 classrooms)

Quality Measures	Percentage of Time				
	0-10% of Time	11-25% of Time	26-50% of Time	51-75% of Time	76-100% of Time
Teacher Interactions with Children					
Teacher actively involved with children[a]	0.0%	0.8%	14.3%	43.7%	41.2%
Teacher is teaching children[a]	7.6	26.0	53.8	11.8	0.8
Interactions in which teacher is teaching cognitive concepts[b]	11.8	21.8	46.2	16.8	3.4
Interactions with children in which teacher uses positive techniques[b]	1.7	0.8	18.5	56.3	23.5
Interactions with children in which teacher uses negative techniques[b]	95.0	5.0	0.0	0.0	0.0
Children in classrooms with no one-to-one adult attention	0.8	16.8	58.0	22.7	1.7
Children's Behavior					
Children engaged in activity with goal[c]	8.4	31.9	47.9	11.0	0.8
Children's interactions involving higher-level social strategies[d]	28.6	30.2	35.3	5.9	0.0

[a]Source: Adult-Focused Observation: Time Sample
[b]Source: Adult-Focused Observation: Interaction Sample
[c]Source: Child-Focused Observation: Time Sample
[d]Source: Child-Focused Observation: Interaction Sample

Exhibit A.48

Average Scores, Standard Deviations and Distribution of Scores for the Early Childhood Environment Rating Scale (ECERS) (n=119 classrooms)

ECERS Scores[a]	All Classrooms		Percentage of Classrooms with Scores Between:						
	$\bar{x}$	(s.d.)	Inadequate 1.0 - 1.9	2.0 - 2.9	Minimal 3.0 - 3.9	4.0 - 4.9	Good 5.0 - 5.9	6.0 - 6.9	Excellent 7.0
Average score	4.5	(.72)	0%	1.7%	23.5%	46.2%	28.6%	0%	0%
Subscales									
Personal care	4.7	(.93)	0	3.4	15.1	37.0	23.6	10.9	0
Furnishings	4.3	(.88)	0	7.6	25.2	39.5	26.9	0.8	0
Language	5.0	(1.17)	0	4.2	13.4	28.6	26.1	25.2	2.5
Motor	4.7	(.85)	0	1.7	17.6	35.3	37.0	8.4	0
Creative	4.4	(.92)	0	5.9	23.5	40.3	25.3	5.0	0
Social dev.	4.1	(.91)	1.7	7.5	32.8	41.2	26.0	0.8	0
Adult needs	4.7	(1.15)	0	5.9	20.2	31.0	27.8	12.6	2.5

[a]Possible range: 1 = Inadequate to 7 = Excellent

Exhibit A.49

Average Scores, Standard Deviations and Distribution of Scores on the Assessment Profile for Early Childhood Classrooms (n = 119 classrooms)

Assessment Profile Scores	All Classrooms			Percentage of Classrooms with Scores:			
	$\bar{x}$	(s.d.)	Percentage of Maximum Score	Less than 25% of Maximum	26 - 50% of Maximum	51 - 75% of Maximum	76 - 100% of Maximum
Total score (max. = 147)	108.1	(16.1)	73%	0%	3.4%	47.0%	49.6%
Subscores							
Schedule (max. = 23)	18.3	(3.6)	78	0	28.6	28.6	65.5
Learning environment (max. = 18)	12.3	(3.2)	67	3.4	12.6	42.0	42.0
Safety and health (max. = 24)	19.0	(2.8)	79	0	0.8	36.2	63.0
Curriculum (max. = 28)	17.7	(5.0)	64	1.7	23.5	53.0	1.8
Interacting (max. = 32)	26.2	(5.3)	81	1.7	4.2	21.8	62.3
Individualizing (max. = 22)	14.6	(4.5)	68	4.2	19.3	39.5	37.0

Exhibit 50

Average Scores, Standard Deviations and Distribution of Average Scores for the Description of Preschool Practices (n = 119 classrooms)

DPP Scores[a]	All Classrooms		Percentage of Classrooms with Scores:			
	$\bar{x}$	(s.d.)	Rarely 1.0 - 1.9	2.0 - 2.9	Sometimes 3.0 - 3.9	Frequently 4.0 - 5.0
Overall average	3.64	(.72)	3.4%	12.6%	46.2%	39.5%
Average for Appropriate Items	3.46	(.88)	4.2	26.9	37.8	31.1
Average for Inappropriate Items	2.18	(.71)	41.2	46.2	8.4	4.2

[a]Possible range = 1-5, for all scores

Exhibit A.51

Average Scores for Classrooms on Description of Preschool Practices (n = 119 classrooms)

Classroom Practices[a]	$\bar{x}$	(s.d.)
Overall Average for <u>Appropriate Behaviors</u>	3.5	(0.9)
Children select their own activities	3.7	(1.1)
Teacher asks questions that have more than one right answer	3.3	(1.2)
Math, science concepts are taught through blocks, cooking, woodworking	3.0	(1.3)
Teachers interact with children by asking questions, offering suggestions or adding ideas	3.4	(1.2)
Children are encouraged to develop social skills through cooperating, negotiating	3.8	(1.1)
Children are physically and mentally active, choosing from activities and initiating their own	3.6	(1.1)
Children use a variety of art media in ways of their own choosing	3.1	(1.3)
Teachers get children involved in activities by stimulating their natural curiosity and interest	3.5	(1.2)
Children are exposed to ways reading, writing are useful to them	3.0	(1.3)
Teachers move among children to encourage involvement with materials and activities	3.8	(1.0)
Children have daily opportunities to choose and use manipulables	4.0	(1.0)
Teachers prepare the environment for learning through active exploration, interaction	3.5	(1.3)
Teachers use positive guidance techniques such as modelling, redirecting	3.8	(1.1)

Exhibit A.51

Average Scores for Classrooms on Description of Preschool Practices (n = 119 classrooms)

Classroom Practices[a]	$\bar{x}$	(s.d.)
Overall Average for Inappropriate Behaviors	2.2	(0.7)
Large group instruction is used	2.8	(1.0)
Teachers tell children what they will do and when	2.9	(1.1)
Teachers expect children to sit down, be quiet and listen for major periods of time	1.8	(1.1)
Children use workbooks, worksheets, flashcards	1.7	(1.0)
Reading and writing instruction emphasizes letter recognition, reciting the alphabet, drawing letters	1.9	(1.3)
Children have structured lessons in small motor activities like using scissors, coloring forms, tracing	2.5	(1.3)
Teachers expect children to respond correctly with the right answer; memorization and drill are important ways for children to learn	1.9	(1.1)
Teachers encourage involvement by requiring it, giving rewards	2.1	(1.2)
Most lessons are teacher-directed and highly-structured	2.1	(1.1)
Art projects involve copying models, forms made by teacher	2.8	(1.4)
Math, science concepts are taught as specific subjects in separate time periods	1.7	(1.0)
Teachers do activities for the children	2.1	(1.1)
Teachers dominate the class by talking to whole class and telling children what to do	2.4	(1.2)
Children work individually at desks or tables most of the time or listen to teacher directions in the total group	2.1	(1.2)

[a]Overall average and individual item scores range from 1 ("Rarely") to 5 ("Frequently")

Exhibit A.52

Average Scores, Standard Deviations and Distributions of Scores from the Arnett Global Rating Scale: Lead Teachers (n = 119 lead teachers)

Arnett Subscores[a]	All Lead Teachers		Percentage of Lead Teachers with Scores:			
	$\bar{x}$	(s.d.)	Not at All 1.0 - 1.5	Somewhat 1.6 - 2.5	Quite a Bit 2.6 - 3.5	Very Much 3.6 - 4.0
Score 1 ("Warm/Responsive")	3.3	(.60)	0.9%	10.4%	50.4%	38.3%
Score 2 ("Harsh/Punitive")	1.4	(.54)	71.2	24.6	3.4	0.8
Score 3 ("Detached")	1.5	(.57)	66.4	29.4	4.2	0
Score 4 ("Firm/Controlling")	2.8	(.69)	2.5	32.2	45.0	20.3
Score 5 ("Loose Control")	2.0	(.77)	43.2	44.9	7.7	4.2

[a]Possible range = 1-4, for all subscales

Exhibit A.53

Mean Scores, Standard Deviations and Distributions of Subscore Averages from the Arnett Global Rating Scale: Assistant Teachers/Aides (n = 135 aides)

Arnett Subscores[a]	All Assistants/Aides		Percentage of Assistant Teacher/Aides with Scores:			
	$\bar{x}$	(s.d.)	Not at All 1.0 - 1.5	Somewhat 1.6 - 2.5	Quite a Bit 2.6 - 3.5	Very Much 3.6 - 4.0
Score 1 ("Warm/Responsive")	3.0	(.65)	1.9%	21.0%	50.4%	26.7%
Score 2 ("Harsh/Punitive")	1.5	(.58)	59.6	30.8	9.6	1.0
Score 3 ("Detached")	1.8	(.65)	49.5	40.6	7.2	2.8
Score 4 ("Firm/Controlling")	2.8	(.70)	1.8	33.7	44.5	20.0
Score 5 ("Loose Control")	1.9	(.66)	35.5	56.3	7.3	0.9

[a]Possible range = 1-4, for all subscales

Exhibit A.54

Correlations Among Global Classroom Measures
(n=119 programs)

		Description of Preschool Practices (DPP)			Arnett (Lead Teachers)	
	ECERS	Overall Average	Appropriate Practices	Inappropriate practices	Warmth/ Responsiveness	Harshness
Assessment Profile (total score)	.71[a]	.71	.69	-.56	.48	-.51
ECERS (average score)		.74	.73	-.61	.52	-.49
DPP (overall average score)			.93	-.90	.61	-.60
DPP: Appropriate Practices (average)				-.68	.67	-.55
DPP: Inappropriate Practices (average)					-.43	.56
Arnett Caregiver Rating: Responsiveness (total)						-.70

[a]All correlations statistically significant at the one-tenth percent level.

Exhibit A.55

Distribution of Average Scores for the Early Childhood Environment Rating Scale (ECERS) by Type of Program (n=119 classrooms)

ECERS Scores[a]	Percentage of Programs with Scores Between:						
	Inadequate 1.0 - 1.9	2.0 - 2.9	Minimal 3.0 - 3.9	4.0 - 4.9	Good 5.0 - 5.9	6.0 - 6.9	Excellent 7.0
Child care centers (n=42)	0.0%	4.8%	35.7%	40.5%	19.0%	0.0%	0.0%
Head Start programs (n=39)	0.0	0.0	7.7	48.7	43.6	0.0	0.0
School-sponsored programs (n=38)	0.0	0.0	26.3	50.0	23.7	0.0	0.0

[a]Possible range = 1-7, with = Inadequate and 7 = Excellent

Exhibit A.56

Distribution of Total Scores on the Assessment Profile for Early Childhood Programs by Type of Program (n = 119 classrooms)

Assessment Profile Score	Percentage of Programs with Scores:			
	25% of Maximum or Less	26 - 50% of Maximum	51 - 75% of Maximum	76 - 100% of Maximum
Child care center (n=42)	0.0%	9.5%	52.4%	38.1%
Head Start program (n=39)	0.0	0.0	23.1	76.9
School-sponsored program (n=38)	0.0	0.0	65.8	34.2

Exhibit A.57

Distribution of Average Scores for the Description of Preschool Practices (n = 119 classrooms)

DPP Scores[a]	Percentage of Programs with Scores: Rarely 1.0 - 1.9	2.0 - 2.9	Sometimes 3.0 - 3.9	Frequently 4.0 - 5.0
Average for Appropriate Items				
Child care centers (n=42)	11.9%	38.1%	33.0%	16.7%
Head Start programs (n=39)	0.0	17.9	41.1	41.0
School-sponsored programs (n=38)	0.0	23.7	39.5	36.8
Average for Inappropriate Items				
Child care centers (n=42)	26.2	50.0	14.3	9.5
Head Start programs (n=39)	56.4	41.0	2.6	0.0
School-sponsored programs (n=38)	42.2	47.3	7.4	2.6

[a]Possible range = 1-5, for all scores

Exhibit A.58

Distributions of Average Scores from the Arnett Global Rating Scale: Lead Teachers (n = 119 lead teachers)

Arnett Subscores[a]	Percentage of Lead Teachers with Scores: Not at All 1.0 - 1.5	Somewhat 1.6 - 2.5	Quite a Bit 2.6 - 3.5	Very Much 3.6 - 4.0
Warm/Responsive				
Child care centers (n=42)	2.4%	17.1%	51.2%	29.3%
Head Start programs (n=39)	0.0	7.9	57.9	34.2
School-sponsored programs (n=38)	0.0	5.6	41.6	52.8
Harsh/Punitive				
Child care centers (n=42)	53.7	36.5	7.4	2.4
Head Start programs (n=39)	79.5	20.5	0.0	0.0
School-sponsored programs (n=38)	81.6	15.8	2.6	0.0

[a]Possible range = 1-4, for all subscales

Exhibit A.59

Relationships Between Global Ratings of Quality and Level of Parent Involvement

Global Quality Rating	Overall ANOVA			No Parent Involvement[a] (n=37)	Moderate Parent Involvement (n=54)	High Parent Involvement (n=23)
	R^2	F	P	$\bar{x}$	$\bar{x}$	$\bar{x}$
ECERS	.13	8.9[c]	.0002	4.22	4.6	5.0
Assessment Profile	.14	9.2[a]	.0002	99.7	110.3	115.4
DPP: Appropriate Practices	.10	6.6[a]	.002	3.1	3.6	3.8
DPP: Inappropriate Practices	.09	5.5[b]	.005	2.5	2.1	1.9
Arnett: Teacher Warmth	.01	0.8	.44	31.9	33.3	32.7
Arnett: Teacher Harshness	.01	0.7	.49	10.2	9.3	9.5

[a]"No" parent involvement is defined as no type of parent involvement in which the majority of parents participate; "moderate" means 1 to 2 types of parent involvement and "high" means 3 to 7 types in which the majority of parents participate.

[b]Programs with no parent involvement are significantly different than programs with moderate parent involvement.

[c]Programs with no parent involvement are significantly different than programs with high parent involvement.

[d]Programs with high parent involvement are significantly different than programs with moderate or no parent involvement.

Exhibit A.60

Average Scores on Global Ratings of Quality at Different Levels of Teacher Background (n=119 programs)

Global Quality Measure	Level of Education		Child-Related Specialization		Previous Elementary Teaching Experience	
	Less than B.A. (n=53)	B.A. or More (n=66)	No (n=25)	Yes (n=94)	No (n=92)	Yes (n=27)
ECERS	4.4	4.6	4.19	4.6**	4.50	4.6
Assessment Profile	107.5	108.6	101.0	110.0**	108.1	108.0
DPP: Appropriate Practices	3.27	3.6*	3.27	3.51	3.37	3.8*
DPP: Inappropriate Practices	2.34	2.15*	2.32	2.2	2.23	2.0
Arnett: Teacher Warmth	30.8	34.2**	31.2	33.1	32.0	35.0*
Arnett: Teacher Harshness	10.4	9.0*	11.0	9.3	9.9	8.7

* Statistically significant difference at the five percent level.
** Statistically significant difference at the one percent level.

Exhibit A.61

Correlations Between Measures of Quality: Groupings and Activities and Selected Program Characteristics (n=119 programs)

	Structural Variables			Institutional Variables	Classroom Variables			Teacher Background
Quality Measure: Groupings and Activities*	Percentage of Time One Staff Member in Classroom	Average Child/ Staff Ratio	Average Class Size	Director Leadership Qualities	Percentage of Working Mothers	Percentage of Children with Risk Factors	Level of Parent Involvement	Amount of Early Childhood Teaching Experience
Percentage of goal-directed activities	-.19*	-.10	-.01	.23*	.02	.03	.01	.09
Percentage of time in exploratory activities	-.13	-.12	-.00	.19*	-.14	.07	.17	.15
Percentage of time in art/music activities	-.08	-.17	-.09	.02	-.22*	-.01	-.01	-.11
Percentage of time in small groupings	.12	-.23**	-.24**	-.08	.01	.15	.08	.17
Percentage of time in whole class grouping	.07	.16	-.04	.02	.08	-.21*	-.14	-.30**
Percentage of time in single activity	.03	.11	.10	-.06	.03	-.10	.01	-.19*
Percentage of time in 3 or more activities	-.17	.06	.03	.15	-.03	.12	.01	.11

*Source: Classroom Snapshot (one full program day)

2-tailed significance:
* Statistically significant at the five percent level.
** Statistically significant at the one percent level.

A-64

Exhibit A.62

Average Percentages of Time in Child Groupings and Classroom Activities at Different Levels of Teacher Background (n=119 programs)

Quality Measures: Groupings and Activities*	Level of Education		Child-Related Specialization		Previous Elementary Teaching Experience	
	Less than B.A. (n=53)	B.A. or More (n=66)	No (n=25)	Yes (n=94)	No (n=92)	Yes (n=27)
Percentage of goal-directed activities	30.5%	31.9%	28.3%	32.1%	30.8%	32.8%
Percentage of exploratory activities	10.7	11.1	9.6	11.3	11.0	10.6
Percentage of art/music activities	12.4	13.3	11.1	13.4	12.8	13.4
Percentage of time in small groupings	49.4	44.2	48.2	46.1	46.6	46.3
Percentage of time in whole class grouping	36.5	42.6*	39.0	40.1	38.6	44.6*
Percentage of time in single activity	49.6	51.9	50.9	50.9	49.9	54.1
Percentage of time in 3 or more activities	37.6	34.5	33.9	36.4	36.3	34.3

*Source: Classroom Snapshot (one full program day)

* Statistically significant difference at the five percent level.

Exhibit A.63

Average Percentage of Time in Teacher Interactions and Child Behaviors at Different Levels of Teacher Background (n=119 programs)

Quality Measure: Teacher Interactions and Child Behavior	Level of Education		Child-Related Specialization		Previous Elementary Teaching Experience	
	Less than B.A. (n=53)	B.A. or More (n=66)	No (n=25)	Yes (n=94)	No (n=92)	Yes (n=27)
Teacher Interactions with Children						
Percentage of time teacher is actively involved with children[a]	63.0%	73.0%***	63.1%	70.0%*	65.4%	79.3%***
Percentage of time teacher is teaching children[a]	26.1	35.7***	27.1	29.1 32.5		39.2**
Percentage of teaching that is cognitive concepts[b]	27.4	40.2***	27.7	36.3	32.4	41.6*
Percentage of interactions in which teacher uses positive techniques[b]	57.7	68.0***	56.5	65.1	61.5	69.3*
Percentage of children in classroom with no one-one attention from adult[c]	32.7	29.5	30.2	31.1	32.4	25.7*
Child Behavior						
Percentage of time children are engaged in activities with goals[c]	64.0	57.4*	66.6	58.7*	55.0	61.9*
Percentage of interactions in which children use higher-level social strategies[d]	22.8	23.0	19.0	24.0	23.1	22.1

Source: [a]Adult-Focused Observation: Time Sample
Source: [b]Adult-Focused Observation: Interaction Sample
Source: [c]Child-Focused Observation: Time Sample
Source: [d]Child-Focused Observation: Interaction Sample

* Statistically significant difference at the five percent level.
** Statistically significant difference at the one percent level.
*** Statistically significant difference at the one-tenth percent level.

Exhibit A.64

Correlations Between Measures of Quality: Teacher Interaction and Child Behavior and Selected Program Characteristics (n = 119 programs)

Quality Indicator: Teacher Interactions and Child Behavior	Structural Variables			Institutional Variables	Classroom Variables			Teacher Background
	Percentage of Time One Staff Member in Classroom	Average Child/ Staff Ratio	Average Class Size	Director Leadership Qualities	Percentage of Children with Risk Factors	Percentage of Working Mothers	Level of Parent Involvement[a]	Amount of Early Childhood Teaching Experience
Teacher Interactions with Children								
Percentage of time teacher is actively involved with children[a]	-.16	-.07	-.04	.11	.14	-.04	.26**	-.16
Percentage of time teacher is teaching children[a]	-.12	.05	-.02	.13	-.01	-.14	.21*	-.12
Percentage of teaching that is cognitive concepts[b]	-.07	.12	.00	.10	-.11	-.17	.08	-.14
Percentage of interactions in which teacher uses positive techniques[b]	-.13	-.11	-.11	-.03	-.06	-.10	.08	-.18*
Percentage of children in classroom with no one-one attention from adult[c]	-.01	.22*	.32***	.18	-.14	-.11	-.20*	.05
Children's Behavior								
Percentage of time children are engaged in activities with goals[c]	-.10	-.22*	-.20*	.01	.05	-.11	-.13	-.09
Percentage of interactions in which children use higher-level social strategies[d]	-.18*	-.15	-.14	.20	-.04	-.02	.03	-.02

Source [a]Adult-Focused Observation: Time Sample
Source [b]Adult-Focused Observation: Interaction Sample
Source [c]Child-Focused Observation: Time Sample
Source [d]Child-Focused Observation: Interaction Sample

2-tailed significance:
* Statistically significant at the five percent level
** Statistically significant at the one percent level
*** Statistically significant at the one-tenth percent level

Exhibit A.65
Correlations Among Measures of Program Quality from the Global Ratings and Measures from the Microobservations
(n = 119 classrooms)

Quality Measures: Microobservations	Quality Measures: Global Ratings					
	ECERS	Assessment Profile	DPP: Appropriate Practices	DPP: Inappropriate Practices	Arnett: Teacher Warmth	Arnett: Teacher Harshness
Activities and Groupings[a]						
Percentage of goal-directed activities	.14	.07	.17	.04	.14	-.06
Percentage of exploratory activities	.23**	.22*	.23**	-.27**	.10	-.16
Percentage of art/music activities	.14	.03	.16	-.09	.14	-.11
Percentage of time in 1 activity	-.09	-.21*	-.22*	.22*	-.14	.19
Percentage of time in 3+ activities	.16	.25**	.30***	-.23**	.16	-.23**
Percentage of time in small groupings	.14	.18*	.19*	-.24**	.09	-.07
Percentage of time in whole class grouping	-.15	-.14	-.11	.14	-.05	.05
Teacher Interaction with Children						
Percentage of time teacher interacts with children[b]	.25**	.26**	.31***	-.19*	.32***	-.27**
Percentage of time teacher teaches children[b]	.23**	.11	.29**	.01	.38***	-.28**
Percentage of teaching focused on cognitive concepts[b]	.12	-.06	.12	.10	.26**	-.21*
Percentage of positive teaching techniques[b]	.27**	.22*	.35***	-.22**	.61***	-.46***
Percentage of children with no one-to-one interaction with adult[c]	-.23**	-.28**	-.18*	.18*	-.11	.07
Children's Behavior						
Percentage of time children engaged in activity with goal[c]	.16	.10	.18*	-.15	.32***	-.22*
Percentage of time children use higher-level strategies[c]	.22*	.25**	.23**	-.24**	.14	-.09

[a]Source: Classroom Snapshot (one full day)
[b]Source: Adult-Focused Observation
[c]Source: Child-Focused Observation

2-tailed significance:
* Statistically significant at the five percent level
** Statistically significant at the one percent level
***Statistically significant at the one-tenth percent level

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APPENDIX B

THE CLASSROOM SNAPSHOT

APPENDIX B

THE CLASSROOM SNAPSHOT

Each Snapshot characterizes the classroom by providing a picture of what each child and adult is doing at a particular moment. Each Snapshot provides for recording up to 24 activities that might be occurring and within each activity, up to 48 possible groupings of children and adults (e.g., a group of 2-7 children with an aide). The Snapshot was also used to record the number of adults and children in the classroom, and the occurrence of distress or disagreements among the children.

On the first of the five days of observation of each classroom, the classroom was observed for a full program day. The amount of observation time in a classroom varied depending on the length of the program day and ranged from an average of three hours for half-day programs to almost seven hours for full-day programs. (Time in which all children were napping or resting was excluded. For extended- and full-day programs, nap time ranged from one to three hours). On this full day of observation, the Snapshot was coded at ten-minute intervals throughout the entire program day. This meant that approximately 20 Snapshots were recorded in half-day programs and 40 snapshots in full-day programs. On the four subsequent days of observation, the Snapshot was coded for a standard portion of the program day, approximately two hours of "core" program time, i.e., excluding arrival, departure, lunch, and nap regardless of the length of the program day

Using the Snapshot data, we constructed two sets of variables to represent: (1) the percentage of Snapshots in which a particular activity or grouping occurred; and (2) the percentage of the total number of activities or groupings accounted for by a particular activity. In the current study, these variables are assumed to represent the ways in which classroom time is distributed among activities and groupings.

In analyzing the data from the Snapshots, we assumed that the observational intervals were short enough to represent classroom time accurately. In classrooms with four-year-olds, most activities last at least 10 minutes (the observation interval used). Therefore, when we

compute the average frequency of various activities and groupings, these are interpreted as reflecting the percentage of classroom time devoted to a particular activity, for example. A possible consequence of this interpretation is the underestimation of short-duration events such as a teacher's absence from the room.

In our analyses of groupings and activities, we could choose to base the percentages on the Snapshots from one full day or combine Snapshots from the week of observation. The disadvantage of using all five days was that the Snapshots on days two through five were recorded only during the core morning program, which cannot be assumed to represent activities and groupings over a whole program day. Therefore, we assessed the extent to which one full day of observation could reliably represent the classroom experience (versus two, three, four or five days of observation) and also assessed possible bias by comparing the distribution of activities in a three-hour program with those in an eight-hour program. Our analysis showed that one full day of observation was sufficient to describe the classroom accurately. That is, the mean frequencies of individual activities and groupings calculated for the first full day of observation were not significantly different from the mean frequencies calculated for the full five days of Snapshots. On the other hand, the proportion of classrooms in which a specific activity, such as reading aloud, was not observed at all in a single day of observation diminished substantially in the full week of observation. The discussion of findings here is drawn from the analysis of data from the complete program day and represents more than 600 hours of observation. Differences from the full week of observation are noted.

APPENDIX C

DESCRIPTION OF FOUR GLOBAL QUALITY MEASURES

APPENDIX C

DESCRIPTION OF FOUR GLOBAL QUALITY MEASURES

During the week of classroom observation, four measures of the overall quality of the classrooms were collected. The **Description of Preschool Practices** (DPP: Abt Associates, 1991) rates the developmental appropriateness of the classroom environment and the caregiver's behavior. The items on the DPP include descriptions of both "appropriate" and "inappropriate" practices, based on NAEYC guidelines. An average score was computed across all 27 items, after standardizing the direction of the items (i.e., reversing the order of the responses on items that describe inappropriate behaviors). Also, separate averages were computed for the "Appropriate" and the "Inappropriate" items. On these average scores, the maximum possible score is 5 ("Frequently/Most of the Time") and the minimum possible score is 1 ("Rarely or Never").

The **Assessment Profile for Early Childhood Programs** (Abbott-Shim & Sibley, 1987) is a checklist intended to assess the overall quality of early childhood programs. The measure includes 147 items, coded as Yes/No, covering safety and health, the learning environment, scheduling, curriculum, interacting, and individualizing. For this study, a total score for the Assessment Profile was computed by summing the number of items on which the classroom was scored as "positive", i.e., exhibiting the particular quality characteristic. The maximum possible score is 147 (one point for each item).

The **Early Childhood Environment Rating Scale** (Harms and Clifford, 1980) consists of 37 items covering seven areas: personal care routines of children, furnishings and display for children, language-reasoning experiences, fine and gross motor activities, creative activities, social development, and adult needs. The observer rates the classroom on each item using a seven-point scale (inadequate to excellent). Previous studies have computed both a total score for the ECERS as well as seven subscores. Psychometric data on the scale indicate substantially higher reliability for the total score, compared with the subscores. In this study, two summary scores were computed. The total score was computed by summing the individual item scores (1-7) across the 37 items. The maximum possible score is 259. An average was also computed which could take on values from 1 ("Inadequate") to 7 ("Excellent").

The **Global Rating Scale** (Arnett, 1990) assesses the emotional tone of the caregiver in the early childhood classroom. A total score for the rating scale could not be computed because it was impossible to assign a positive or negative value to each of the individual items on the rating scale. In previous studies, factor scores were derived from factor analysis and used as variables in the analysis. In this study, we first grouped items based on their content. We then conducted a factor analysis which confirmed the subscores we originally identified. The factor analysis (using the varimax rotation method) identified five factors in the data, with the first four factors accounting for 60 percent of the variance. The first factor, which accounted for 38 percent of the variance, loaded heavily on ten items that appear to measure positive, warm, responsive behavior[1]; the second factor, which accounted for 12 percent of the variance, loaded heavily on seven items that relate to harsh, punitive behavior; the third factor, accounting for 6 percent of the variance, loaded on four items that relate to detachment; and the fourth factor, which only accounted for 5 percent of the variance, loaded primarily on three items that measure firm, controlling behavior.

For our analyses, scores for the first two factors were computed. The subscore for "caregiver" responsiveness was based on ten of the items, and the subscore for "caregiver harshness" was based on seven of the items. Averages for the two constructs were computed by summing the item scores (which ranged from 1 to 4) and dividing by the number of items.

Reliability of the Global Measures

In the current study, the global ratings had adequate reliability. The total scores for the ECERS, the Assessment Profile, the DPP, and the Arnett all had good internal consistency, as indicated by high Cronbach alphas (Exhibit 6.1). The subscales from these measures were not as reliable; the subscales had lower Cronbach alphas, some in the .60-.70 range.

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[1]The Arnett Rating Scale is shown in the Appendix. Factor 1 loads heavily on items #1,3,6,7,8,11,14,16,19,25; factor 2 loads on items #2,10,12,17,20,22,26; factor 3 loads on items #5,13,21,23; factor 4 loads on items #4,18,24; factor 5 loads on items #9,15.

Exhibit C.1

Reliability of the Global Quality Scores

Global Quality Score	Number of Items	Cronbach's Alpha Coefficient[a]
ECERS		
Total score	37	.92
Subscores:		
Personal care	5	.64
Furnishings	5	.72
Language	4	.87
Motor	6	.78
Creative	7	.73
Social development	6	.74
Adult needs	4	.70
Assessment Profile		
Total score	147	.92
Subscores:		
Schedule	23	.60
Learning env.	18	.74
Safety and health	24	.77
Curriculum	28	.83
Interacting	32	.87
Individualizing	22	.86
Description of Preschool Practices (DPP)		
Appropriate practices	13	.94
Inappropriate practices	14	.88
Arnett Global Rating (Teachers)		
Warmth/responsiveness	10	.91
Harshness	7	.90

[a]Coefficient ranges from 0 to 1.0, with higher scores indicating higher internal consistency among items.

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